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Planned Cities—II—Edinburgh

IN the summer of 1923, an American journalist walked 600 miles through England and southern Scotland and on completing his journey at Edinburgh said that he had been generously rewarded for his feat by his enjoyment of the striking beauty of the Scottish capital. He discovered something in Edinburgh—what he called "a dignity, a nobility, an inspiring atmospheric uplift" that he had found in no other city and could not quite fathom. He had difficulty in understanding what it was that appealed to him in this northern city—with its dull gray buildings and dull gray skies. But he showed that he really understood why Edinburgh was to him a "wonder city"—when he described the strength, dignity and general beauty of its architecture, the graceful lines of its silhouette against the sky, the evidence it gives in its structural development of the ideals, culture and historic traditions of the Scottish race.

As a native of Edinburgh, I set forth this tribute rather than pay one of my own. But it leads me to say that the experience of growing up in a city like Edinburgh is necessary to prepare the state of mind that accepts the beautiful in architecture at its true value as a force in moulding character and in developing a sane outlook on life—an outlook that is too often warped by the short-sighted materialism that destroys common sense as well as ideals and imagination. To achieve a beauty of this educating quality, the buildings of a city must be designed in harmony with their natural environment and must be linked with and expressive of the literature, art, science and physical courage of the people who build them.

The Edinburgh we admire is the Edinburgh of the pre-industrial age. It was designed and largely built in the latter part of the eighteenth and the first part of the nineteenth centuries. The ancient part of the city is full of crowded slums caused by continued use of high tenement buildings, closely packed on courts and alleys, as homes for the poorest citizens without adaptation to modern needs. On the other hand the modern additions to the city since the development of the railways, have been as defective in design and arrangement and as disorderly as those of other cities that have expanded during the industrial age through which we have been passing.

Anarchy in City Building in Modern Times

Modern industrial methods and forms of growth have forced us to drift through a century of anarchy in the building of cities. Whether or not we are emerging from that hateful period of experiment in massing people and buildings into congested and disorderly aggregations, and in denying ourselves opportunities for closer contact with natural environment, may be open to question. But surely, in any case, our power to suppress the ugliness, and disorder and false economic standards that have so far been too much the concomitants of industrial expansion, cannot be less in proportion to our greater task, than it was when Washington and Edinburgh were planned. For, strangely enough, our decadence in building cities, as places in which nature and art may jointly contribute their share to our well-being, has taken place side by side with the development of higher skill in almost every other direction in which human effort is applied.

It may be hoped that we have reached a stage when, realizing the limitations of individual wealth to make for the enrichment of life, we can look forward in hopeful expectancy to some real effort being made to improve the structure and environment of the modern cities. The task of doing so is colossal compared to what it has ever been, but so also are the accumulated resources of money, experience and skill of later as compared with earlier generations. In any event, the force of circumstances caused by past failure to plan cities on the one hand, and the growth of education on the other hand, have brought into being a rapidly growing realization of the need of more beauty and order in town development, and some of the most pronounced evidences of the existence of that realization are to be seen in America.

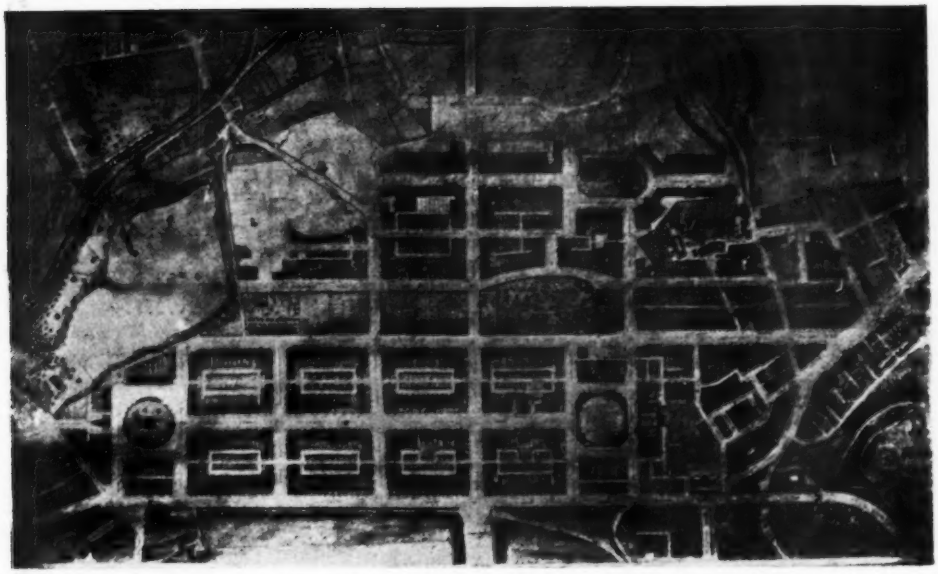
Edinburgh as a city in which structural and natural

EDINBURGH—THE ANCIENT CITY BEFORE EXTENSION TO NORTH AND SOUTH

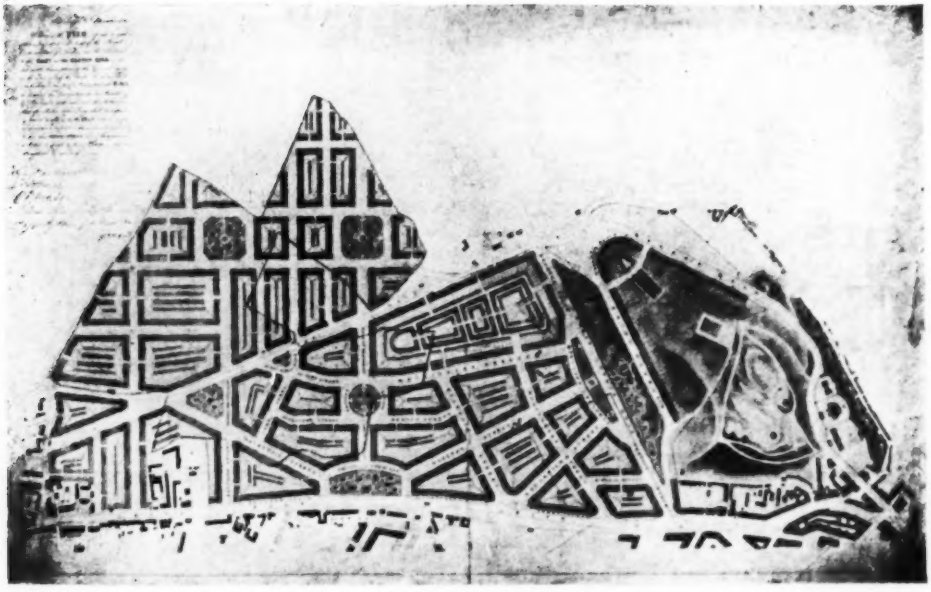
beauty are present in an exceptional degree, is, of course, an inspiration rather than a guide to those who are engaged in helping to build up cities in America. That conditions have changed since the newer part of Edinburgh was built, or that ideals, customs and laws in America today are different from what they were yesterday in Scotland, does not lessen the value of Edinburgh as an example in city-planning. Edinburgh provides us with an object lesson of the value of using the architect, not only in designing separate buildings, but in planning and moulding the city as a unity of buildings fitted agreeably and spaciously into its natural setting. My present object in writing this article on Edinburgh is to indicate what was achieved in one instance, during a generation, by recognizing the place of the architect in achieving this unity.

Old Edinburgh

Before 1765, Edinburgh consisted of the ancient city lying along the crown and slopes of the hill extending between the Castle and the Royal Palace of Holyrood. The streets were crowded and narrow and the leading citizens saw the need for extension of the town into new suburbs. Extension was made difficult towards the north because of the North Loch occupying the site of the present Princes Street Gardens, and also because of a deep valley on the south. Moreover citizens had been accustomed to live in closely crowded tenements. The old city had grown up within walls erected for



EDINBURGH—CRAIG'S PLAN AS CARRIED OUT, WITH REID AND SIBBALD'S PLAN TO THE NORTH



EDINBURGH—CALTON HILL AND LAND TO THE NORTH. 1819, BY PLAYFAIR

EDINBURGH—LOOKING EAST ON PRINCES STREET. ROOF GARDEN OVER PUBLIC MARKET IN FOREGROUND. SCOTT MONUMENT AND CASTLE

EDINBURGH—FROM CASTLE HILL OVERLOOKING FORMER SITE OF NORTH LOCH NOW OCCUPIED BY RAILWAY AND GARDENS—ROYAL SCOTTISH ACADEMY AND ROYAL INSTITUTION IN CENTER—RAILWAY STATION UNDER COVER WITH ROOF GARDEN ON LEFT—SCOTT MONUMENT, NORTH BRITISH HOTEL AND CALTON HILL

EDINBURGH—ST. GILES CATHEDRAL

defensive purposes. The first charters were granted for narrow lots with deep gardens, but as time went on and population grew, the building development became more and more intensive. Outward expansion was difficult and buildings had to be erected on all available open space and made as high as possible. As congestion within the restricted city continued, real estate owners found their opportunity. The owner of the narrow lot put an arch through the building fronting on the street and carried an alley down the center of his lot, building high tenements on both sides. These alleys or "closes" are described as a picturesque but unhealthy combination of lofty and long parallel ranges of buildings with quaint corbellings, timber projections, dormer windows, outside stairs and piazzas. There was no sanitation nor privacy.

And yet as late as 1769, or a few years before the plan of extension of the city was prepared, we are told that there were living in the closes of the Canongate two dukes, eighteen earls and countesses, fourteen lords, thirteen baronets and a host of eminent men. There were 294 of these alleys a few feet wide and ten miles in length, and some of them having a fall between the ends of one hundred feet.* In spite of courageous efforts being made to improve conditions, Edinburgh still suffers from the habits engendered by this period of intensive centralization; and one part of the old city has a density of 100 persons per acre.

The first steps in planning Edinburgh were taken as a part of an effort to promote the decentralization of its population. The scheme was first projected in the time of Charles II but was not carried out until the early years of George III. James VII of Scotland, at that time Duke of Albany, gave the citizens a grant to promote the enlargement of the city and to build bridges. Owners of land were required by royal decree to part with the land at reasonable cost—and provision had to be made to build bridges to assist in securing communication. The French influence was apparent in the early planning work in Edinburgh.

* Paper by T. P. Marwick, Journal of Surveyors Institution. June, 1923.

EDINBURGH—TOLBOOTH ON CANONGATE—ILLUSTRATES CHARACTER OF TENEMENTS FACING THE STREET, AND ARCHED ENTRANCES TO ALLEYS AT REAR. MANY TENEMENTS FACE BOTH SIDES OF THESE ALLEYS ON THE HILL SLOPES

The 18th Lord Erskine prepared plans while in exile on the Continent. In a paper written by him in 1728, he suggested improvement of streets, among other things, and appears to have been the originator of the idea to form Princes Street with gardens at one side. Lord Erskine speaks of making "fine avenues to the town and outlets for airing and walking by the bridges."

Craig's Plan

The Nor' Loch was drained in 1763 and a bridge erected across the valley to the site of the new town in 1772. Meanwhile a competition was held for the best plan for laying out the site and, as a result, the plan of James Craig was adopted in 1767.* As an indication of the spirit of the time towards the architectural profession, it is of interest to note that Craig was given a gold medal and the freedom of the city.

The plan was of the usual rectangular type—with straight streets and squares—in that respect resembling Penn's plan of Philadelphia. The main streets were 100 feet wide with large squares placed so as to secure architectural effect and facilitate circulation. Without belittling the plan, one may claim that the beauty of Edinburgh is mainly due to the manner in which the city was built after the plan was made and to the maintenance of the open space of Princes Street Gardens surrounding the Castle Rock—rising to an elevation of 300 feet above the valley. Proposals to erect buildings on these gardens in 1774 were happily defeated.

R. L. S. on the Plan of Edinburgh

Robert Louis Stevenson, writing of the plan of Edinburgh, referred to the design as "faulty and short-sighted" and the architect as "essentially a town bird who laid out the modern city with a view of street scenery alone." It is curious that Stevenson should have had the vision to appreciate the importance of regional planning. He said the country did not enter into the plan of Craig and "he had never lifted his eyes to the hills." He referred to the lost opportunity of not making the streets on the northern slopes in the

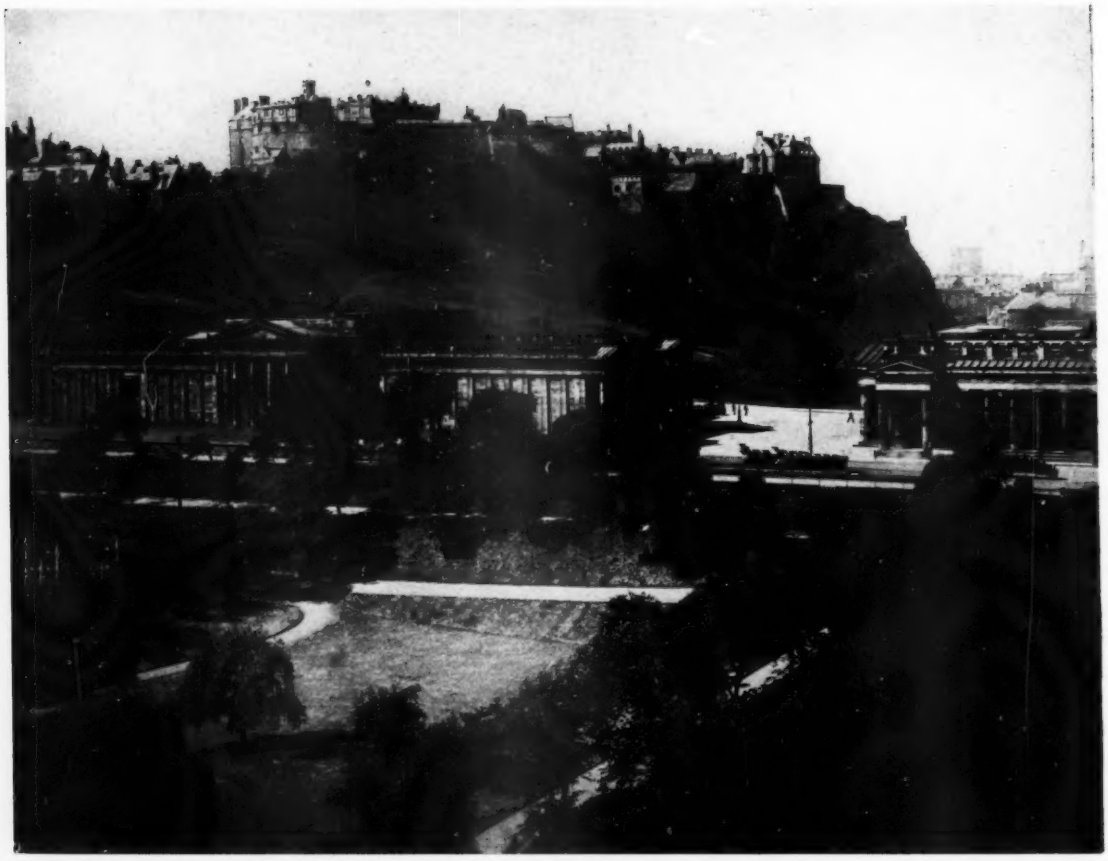
* Queens Square in Bath was developed in 1729 and the Circus in 1764.

EDINBURGH—PRINCES STREET GARDENS

EDINBURGH—WEST ON PRINCES STREET. ROYAL SCOTTISH ACADEMY, BY W. H. PLAYFAIR, ON RIGHT

EDINBURGH—MORAY PLACE, BY GRAHAM, 1823

EDINBURGH—FROM DEAN BRIDGE



EDINBURGH—THE CASTLE AND PRINCES STREET GARDENS. ROYAL INSTITUTION IN CENTER

form of terraces commanding beautiful views. Many of the houses in his opinion front the wrong way, like the man with the muckrake. "It is too often," he says, "that you have to go up to the attic windows to get a view of the diversified surroundings of the city." "Nevertheless," he adds, "it is all the more surprising to come suddenly upon a corner and to see a perspective of a mile or more of falling street, and beyond that woods and vales and the blue arm of the sea and the hills upon the further side." Undoubtedly the climate of Edinburgh lends point to his description of the plan as consisting of "draughty parallelograms."

After Craig's plan was made and the land laid out, an offer was made of £20 to the person who could build the first house. The bait was not accepted for a long time. The original ground rent of land in Princes Street was equal to about one and a half dollars capital value per square yard and today it fetches the equivalent of $13,000 or 9,000 times the price it was when it was planned 150 years ago. Even at that price it is low, compared to the highest values in other cities of 420,000 inhabitants. The present area of the city is 50½ square miles.

After the area planned by Craig was more or less developed, other plans were made—one by Reid and Sibbald in 1806, and a series by W. H. Playfair, Crichton, Milne and Bell, Nasmyth and Reid, in 1817-19. Most of these men were provincial architects. W. H. Playfair, whose plan of 1817 was adopted, collaborated with Adam in designing the University buildings. The last of the series of Edinburgh plans was made by Graham in 1923, for the property of the Earl of Moray, and was the first plan to introduce curved lines.*

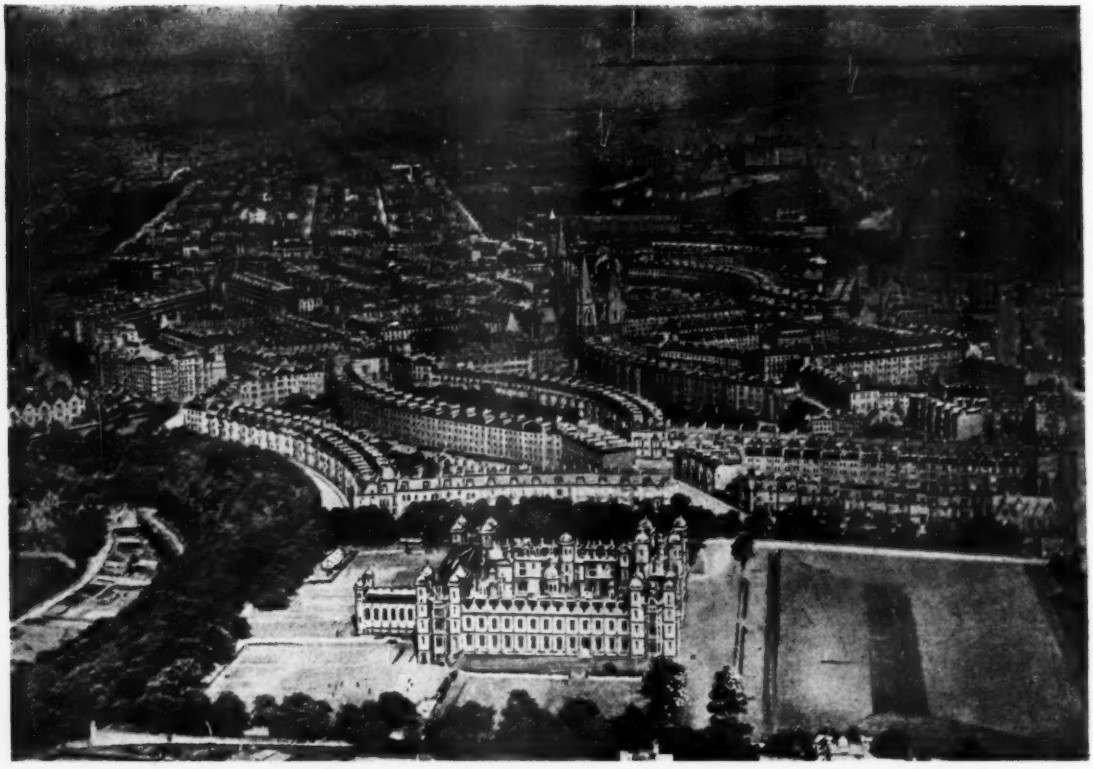
Value of Display in Building

The beauty of Edinburgh is in large measure due to the configuration of the land on which it is built, which enables buildings to be displayed to the best advantage. It is a city set on several hills with deep valleys between them. No doubt one of the reasons

* Paper by Mr. Horsburgh Campbell, City Engineer of Edinburgh, 1912.

EDINBURGH—REGISTER HOUSE, BY ADAM

EDINBURGH—VIEW OF DEAN BRIDGE, SHOWING DIFFICULT TOPOGRAPHY



EDINBURGH—AERIAL VIEW. DONALDSON'S HOSPITAL, BY PLAYFAIR, IN FOREGROUND. STRAIGHT LINES OF CRAIG'S PLAN AT LEFT OF CASTLE. CRESCENTS INDICATE CHARACTER OF PLANS PREPARED AFTER 1830

that caused the citizens to employ architectural advice in planning the city was due to the difficulties caused by these natural conditions. Thus nature made the employment of the architect necessary and at the same time gave him his opportunity. For sixty-five years, from 1765 to 1830, every step in development seems to have been taken under the guidance of leading architects in the city, and happily they commanded a confidence that resulted in their having control over the designs and arrangement of all building as well as the layout of the street system which is perhaps the least important part of the city plan if dealt with by itself. Thus Edinburgh has been built up on no one plan, but on a series of successive plans made at intervals during the sixty or seventy years of an architectural influence that few cities have been permitted to enjoy. The exercise of that influence, while it lasted, meant that the buildings, streets and bridges were treated as part of one composition, although given variety by topographical conditions and by reason of being carried out by different men at different periods. It meant that straight streets did not end in empty vistas but were closed by worthy terminal features of a monumental character, and that façades of streets and squares were designed as a whole in graceful outline as well as with pleasing and related elevations. It meant above all that a spirit of refinement and order became a possession of the citizens, who became in large part builders of their city.

It was Edinburgh's good fortune to have men like Robert Adam and W. H. Playfair as leading architects during its transition period. Adam designed Charlotte Square and the General Register House, and Playfair the Royal Institution and National Gallery, while they both collaborated in the University.

Probably Edinburgh does not possess a greater number of good buildings than the average city. But it has been guided in the art of displaying its buildings. As Ruskin said, of all the cities in the British Islands, Edinburgh presents most advantages for the display of a noble building. Other cities may not have the same natural advantages but many of them have not even seized such opportunities as they have, and this is the secret of their failure to escape from the commonplace in spite of huge expenditures of money in noble buildings. THOMAS ADAMS.

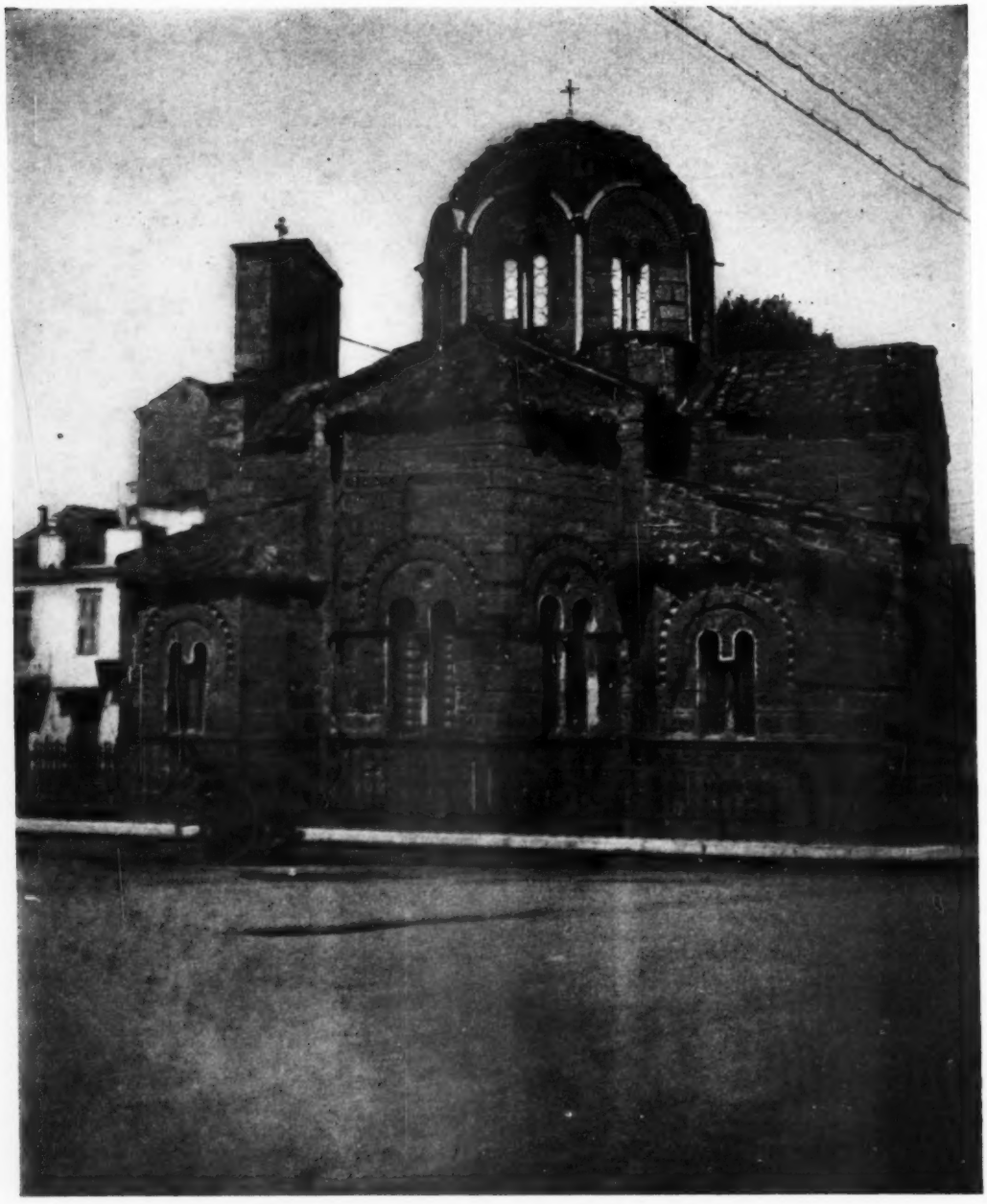
DAPHNI—FROM THE ELEUSIS ROAD *Photograph by E. H. Lowber*

Little Churches in Greece

You can go on board at New York and go ashore at the Piræus: it is no more trouble than going to London, and not necessarily more expensive. For those who love the savor of a seaport, Piræus has its own charms, with tarred rope and sail-lofts, kegs of salt fish and barrows of fresh fruit, white new churches at the top of the steep streets and dim old dram-shops at the bottom; then half an hour in a motor or a little more in a street car will bring you into Athens.

Like Tiryns and Argos, like London and Rouen, and especially like Valencia, Athens is an inland town. Mountains lie all around, and you must climb to the steepest crests of the citadel to see the blue level waterline between the shoulders of the violet hills. It has not, I think, been felt sufficiently how the Greeks, with their pillared colonnades and porches bounded by wall and lintel, foursquare, could reckon on the rich curves of hills and soft contour of promontories, and sudden horizons at various and undreamed-of levels, to break up the even silhouette and complicate the unalterable ratios. In the thick air, the strong colors of orange-tawny stone and bronzed-black scrub and wine-red purplish water take their place with sun-steeped shadow and marbles translucent in the full blaze, so that a look, a single apprehension of the eye, absorbs the near and far as one, and the sky-line is a part of the portico as much as the frieze.

Standing in the short, sparse grass, strewn with marble fragments and starred with daisies yellow-stained like the marbles, the view can range and return, on mountains violet-gray or temples and theatres weathered tawny or coke-colored, on the blue smoke-like olive groves or the rich emerald of acacia plantations, on blond stucco house-blocks or turquoise pools beyond Salamis, through air that is like colored glass, so strong, so brilliant, so unexpected. From such a vantage the town looks fair and clean, with wide streets, white buildings, and everywhere, in squares



S. Theodore—Athens
Photograph by E. H. Lowber

DAPHNI—THE CONVENT YARD
Photograph by E. H. Lowber

and gardens, along avenues, around suburbs, thick lines and clumps of green leafage.

All day and all night the wind stirs the murmuring trees with a noise like running water; and in the heart of the town, in the full of the day, the air is ringing with nightingales.

Every traveler who comes home from Athens, whatever else he brings, has two memories: this of the incessant nightingales, and another of the constant view of the Acropolis. From palace and hotel, from square and suburb, from little tables before cafés or from tobacconists' stalls on the avenue, you turn back and raise your eyes to rest on that rock, so high, so steep, so unexpectedly lovely with the broken ruins against the sky. I have often suspected that the view was lovelier so than before the Italians' gunpowder blew the close-packed mass of buildings into bits; just as I have often wondered in the country villages whether the average Greek peasant today were not a better fellow, on the whole, and more interesting, than those who came into the city to gaze at Pericles or laugh with Aristophanes. Certainly he is more like a brother.

Perhaps, in truth, he is very like, in aspect, in way of thought, as in race, to the hundreds who died nameless on the seashore under Troy; or who tramped in with a wreath of poppies or a plait of wheat-ears to Eleusis after harvest; or who, in the savage rocky fastnesses of Arcadia, paid their dues to Pan in rites that were ancient already when to Thebes came Dionysos with the sacramental Bull. And whether or not the Homeric heroes, and those of the Dorian Invasion, were blond invaders like Ostrogoths and Lombards in Italy, running like a pale flame over the land, burning on every acropolis, like so many altars, at Corinth, Thebes or Sparta, for something less than a millenium and dying down like fire in stubble, while the eastern races took back what was always theirs; certainly, like the mediæval, the modern Greeks are not Hellenic as the Homeric age was, or that of Pericles. They are perhaps none the worse.

The conquests of the Middle Age left daily life, for the most part, intact, and the temper of the country unaltered. If Norwegians and Normans raided in the eleventh century, if Frankish princes of Achaia and the Morea built castles and collected tribute in the thirteenth, till in the fourteenth the Catalans cleared out the remnant of them, and Genoese and Venetians commenced the slow imperialistic policy of aggregation that Italians have not yet unlearned, yet they left no mark, not any of these, on church or convent, on folk-

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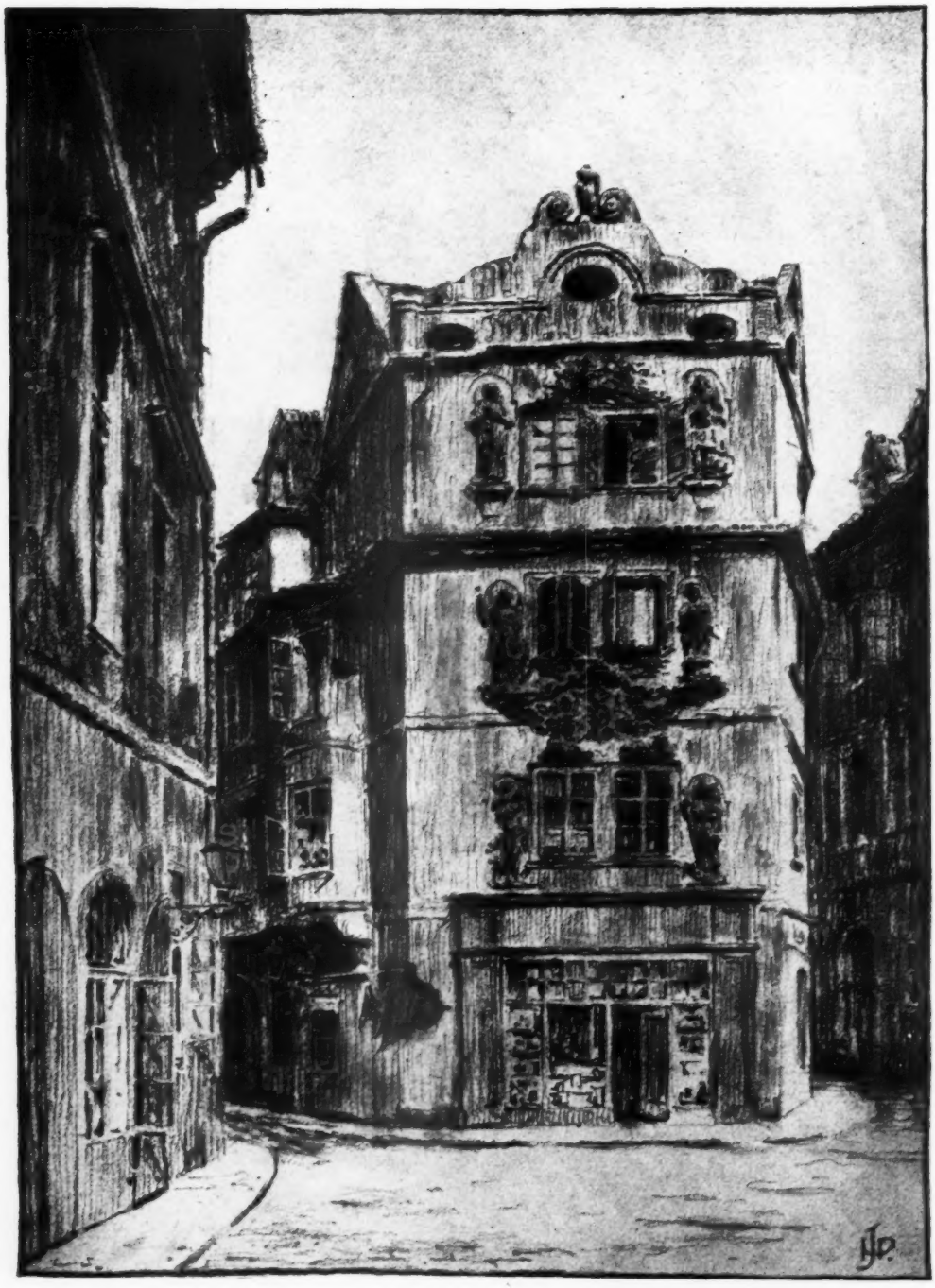
EAST END OF THE KAPNI RAREIA — Photograph by E. H. Lowber

Die Burgstiegen—Prague
After the Drawing by Hans I. Philipp



OLD HOUSE—PRAGUE
After the Drawing by Hans I. Philipp

GOTHENBURG—APARTMENT DEVELOPMENT

Community Planning and Housing

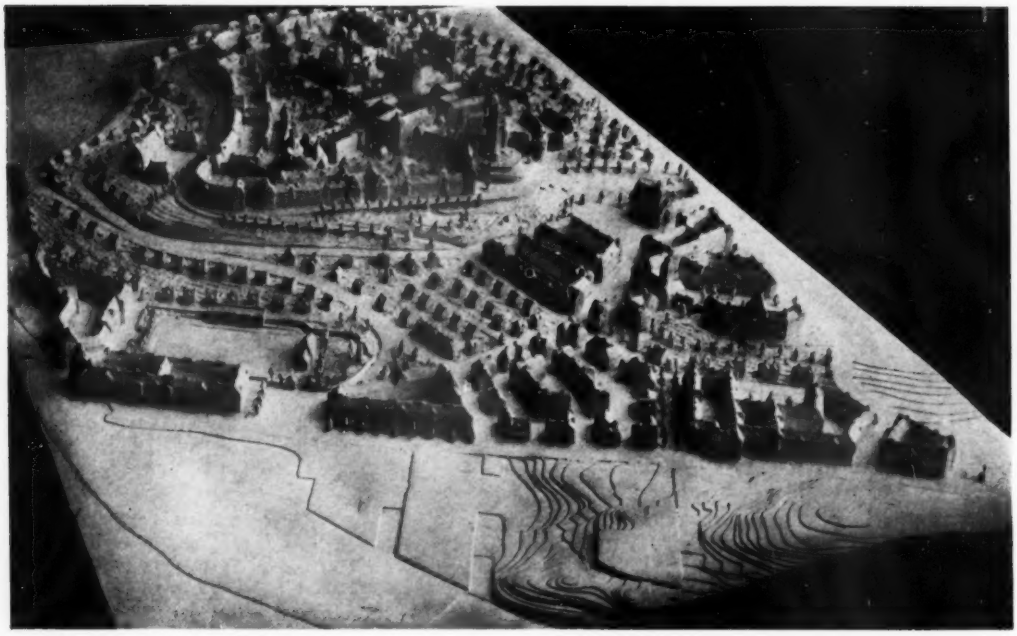
CLARENCE S. STEIN, *Associate Editor*

Housing in Sweden

In 1917 the Swedish State found it necessary to embark upon the policy of subsidizing housing. It may be taken for granted that the measure did not meet with sympathy in all quarters, but it seems to have been generally understood and conceded that the extraordinary situation justified the extraordinary method.

Moreover, Swedes had gradually become accustomed to public intervention in this matter, and to the idea that housing need not be left entirely to private initiative. They had witnessed housing by the State (for its own employees) and a number of cities had already built houses, or had leased cheap land to home builders, or had granted building loans on easy terms. The State had

GOTHENBURG—APARTMENT DEVELOPMENT



GOTHENBURG—MODEL OF KRISTINEDAL

especially encouraged housing in rural regions by appropriating considerable funds for this purpose; thus in all parts of the country there arose the homes of agricultural settlers, who were enabled to found an existence through the economic assistance of the State.

Such economic aid was extended also to industrial employers, who wished to erect houses for their workmen. Either with or without public support, many employers have provided housing facilities, which in some instances have been admirable both as regards quality and quantity. Cooperative housing, by workmen, also has been supported, and seems to have assumed even greater importance in recent years. Still it can hardly be said to be so popular as yet, among the Swedes, as in certain of the neighboring countries, such as Denmark and Finland.

As a consequence of this multiphase development the

STOCKHOLM—A GARDEN SUBURB

STOCKHOLM—A GARDEN SUBURB TYPE

STOCKHOLM—TWO-FAMILY HOUSE

idea of housing as a public concern is now solidly founded in Sweden, most Swedes being convinced that the State has to fulfil certain obligations in this matter, in the interest of sound social development. This conviction has become firmly rooted notwithstanding the quantitatively rather small results of the recent State intervention. In reality, in the period of 1917-1919 the subsidized building operations produced merely about 14,000 rooms, while in 1912, 24,000 rooms were produced in Swedish cities alone. However, it should be noticed that the figure 24,000 includes all dwellings, large and small, whereas the figure 14,000 represents small ones exclusively. This gives significance to the figure 14,000, and if Swedes accept State intervention not merely as a temporary measure but as something of more lasting importance (this as an authoritative publication on housing says) it is because the real importance of the State subvention policy extends much further than is suggested by figures. "Its main result," this publication goes on to explain, "is that the housing question has practically become one of the most important branches of administration in every large community of any consequence. A productive housing policy of any considerable extent was carried on before the war only by the larger towns in Sweden; especially in Stockholm and Gothenburg have garden suburbs grown up that are of moment as pioneers. During and since the war, however, every Swedish community has been compelled to try to do something for the production of dwellings. For this purpose the Swedish towns have long had special advantages, as they have guided the development of building activity into new areas by means of great purchases and sales of estates and by their policy of town planning. Every Swedish town, as a rule, has long been a large landed proprietor." Evidently, Swedish municipalities are alive to the importance of a far-sighted land policy—the acquisition by the town or city of undeveloped land in such large areas that speculation can never again raise its head. In achievements along this line the two largest cities, Stockholm and Gothenburg, have especially distinguished themselves, and their example will be dealt with in the following.

Beside this arousal to the importance of the land question another notable result of the recent development is the indication that dwelling standards are improving. Public intervention as a means to achieving such results is being recognized as important even by those who otherwise are little in sympathy with governmental action. In the fight against overcrowding, increasing the dwelling space of the laboring classes appears as a principal aim. This is, of course, essentially an economic problem, but not exclusively so. Various factors enter into consideration. Noteworthy are recent remarkably successful results in reducing building cost through standardization methods and factory output. These questions have been studied of late in America by several experts sent by the Government or by private corporations. The special difficulty of the problem of dwelling standards no one will deny who is well acquainted with Swedish conditions, economic, social and climatic.

But the fight is on, and Swedes, recognizing that it is merely in its inceptive stage, certainly expect to achieve something along these lines.

Especially in the northern provinces there is much overcrowding in consequence of the hard climate that compels very substantial building, and demands the heating of rooms during many concurrent months, thus restricting dwelling space. This applies, though in lesser degree, to the rest of the country, to the milder southern regions, where five out of Sweden's six million people live.

Interesting is the perspective of the future, when the great water powers of the far north will be exploited on a much larger scale than hitherto, giving rise to more industry in these distant, sparsely populated regions that stretch up beyond the polar circle into the long, hyperborean night of midwinter. From the viewpoint of housing particular interest is attached to the present and future outposts of Swedish industry in these regions. Here industrial life is carried on under conditions very different from those which we generally associate with the development of great industry. On the whole, the much-industrialized Sweden of today is fortunate in having escaped the horrors of the extensive, densely populated industrial conurbations, such as are to be found notably in England and in Germany.

In judging Swedish industrial housing conditions this is not to be entirely forgotten. Above all, sweeping generalizations should be avoided because of the actual variations.

There is reason to remember the rather marked difference between the smaller towns and the larger ones, in general. A great part of Swedish industry is, as already intimated, scattered over the country in rural regions. The smaller cities, except a few, have very little industry. If we now examine those larger cities, which may be called industrial, we find that their housing conditions are especially characterized by a predominance of large tenement houses. Indeed, the most unfavorable impression of Swedish housing conditions is the extent to which the larger cities consist of more or less overcrowded tenements. There is much overcrowding also in rural districts, even more than in the towns, according to statistical indications, but statistics do not reveal that the overcrowded urban tenements constitute an evil even more difficult to combat. However, where statistics are silent, public intervention gives reliable testimony. We find it in the special energy with which the attempts at reform are aiming at combating the overcrowded urban tenement. Measures constituted to further this aim are: The municipal land policy, governmental and communal loans and subsidies, legislation regarding lease-hold of land and regarding inspection of dwellings, revisal of the city planning law, and of the national building act.

The progressive tendencies of Swedish city planning legislation, in the sense in which "progressive" is here taken, can merely be indicated. For the moment stress should be laid on those measures which aim at aiding construction, that is, the public loans and subsidies, and the communal land and construction policy. State subsidies and loans, aggregating about twenty million kronor

(*Continued on page 26*)

GOTHENBURG—BLOCK TYPE DEVELOPMENT—MUNICIPALLY BUILT AND OWNED

Little Churches in Greece

(*Continued from page* 16)

lore or folk-song. Not saintly legends, nor yet embroideries, nor the weaver's or the potter's craft, were altered by a detail, in name or shade or curve. Neither architecture nor painting shows a mark where the iron-shod heel was set down. The little mediæval churches of Macedonia and Greece look back eastward for their sources further even than Byzance. If the folk came from north of the Black Sea, the major arts came from the opposite shore and adjacent parts, Anatolia and Cappadocia, with something from Antioch and from Alexandria.

The traveler in Athens is likely to overlook these little churches altogether, unless in shopping he stumbles over one in the middle of the street. Like Hecate at the cross-roads, the Panagia is worshipped where men go by and turn and return again. The same is true of the church called Kapnikareia, of S. Theodore, and S. Nicholas. The level of the city has risen about them, so that they are set in a sunken area and entered by going down two steps or three, into the dimmed ante-chapel or narthex, whence doors open upon the fragrant darkness of the church. The lustre of metal, bright brass, fresh silver, burnished gold, filagree, repoussé, gem-set; the dark lacquer tones of the iconostasis, bronzed greens and sullen reds, blues dark as the night sky and like it gold-dusted; browns of copper and rust and tan-bark—these hang in the memory, veiled by warmth and incense and taper-smoke, and the smell of the yellow candles. Oh, that odor of the virgin wax, with which Greek churches are charged! In the imprisoned light the eye perceives barrel vaults that brood, and the lift of a central dome, and lower spaces, as though more private, in the angles; through pierced circles in the window-slabs a ray gleams but no more; and colors and forms of wall and vault are dark and vague and taken for granted in the perception and the recollection. Everywhere is space enclosed, made palpable, encompassing and sheltering, yet not cramped or oppressive: rather, quieting, amplifying, alluring the mind to reverie.

We have all known houses—it is indeed the ideal of a cottage—where the interior is much larger than the exterior would betray: well, these churches that seem so tiny, there in the middle of the roadway, once entered are spacious enough. This is the converse of St. Peter's at Rome, where the guides boast that you cannot feel how large it is: this is the opposite of the cathedral in New York, that seems so much smaller within than the gray mass looming above Morningside.

The Old Cathedral of Athens is the eldest of all these. Pure in type, built in the ninth century of white marble, it incorporates in the walls slabs of many epochs and at least three religions. Across the west end stretches an antique calendar, where, on the wide architrave, among pagan emblems of the months, crosses are interpolated; below the frieze, on either side, over the arch of the door and along the south side, slabs are ranged symmetrically. On some is symbolized the triumph of the cross, where lions are adoring or roses are displayed; on others a different tree of life is flanked by girl-faced birds, or lions bearded and human-headed, carved by the devotees of Isis whose chapel once stood close by; stepped crosses like those at Mt. Athos or Armenia, slabs of interlaces like those at S. Marco. All these, with a dead Greek's tomb-relief that Praxiteles might have seen carved, with other devices past telling or divining, hold up the walls and enframe the doors in exquisite stained marbles. Pleasant coppery tiling covers dome and gables and roofs at all their various levels, even to a special half-pyramid over the semi-hexagon of the apse. The strong barrel-vault of the nave that is carried through the narthex gives the dominant, and the dome itself wears structural parts and no more, eight stout arches on columns, the stonework pierced for windows on every face, and the exterior surface of the vault curving smoothly as a pomegranate to the crowning cross. This is the style that at Zamora above the Duero looks so indescribably oriental in the heart of Spain. Here, in its own land, the touch of quaintness that the reliefs impart cannot mar the justness, proportion and lovely quietude of the whole.

S. Theodore is nearly as pure and only a little less primitive, though dated 1049, built of stone, with a string-course of bricks set in saw-tooth around the middle of the walls, that rises over windows and sometimes reduplicates between them. Three apses make up the whole east end and rise almost to the eaves; all the windows, including those of the dome, are conceived with two equal stilted arches separated by a shaft, the spandrel above these and under the main arch being filled in with brickwork cunningly laid. The strong gables, the dome, the narthex still treated as continuing the interior in repetition of its levels, are only less interesting in the brown-grey stone and brick of the exterior than within, where barrel vaults are run now east-and-west, now north-and-south, and the aisles open wide upon the narthex and that upon the street, by three doors in the west wall. Just inside, if memory serves, stands a silver-faced icon of the two SS. Theodore, warrior horsemen both, with flying cloak, who are indeed the Great Twin Brethren invoked by antiquity on many a battle-field, who were worshipped at Sparta before the Dorian came down. Except in name, and in fashion of armour and weapons, you could not tell the Heroes of one cult from the Saints of the other.

From outside, the Kapnikareia would appear to have started with much such a church as these, excepting

that the narthex gables, and those of the sanctuaries, were lowered a trifle, and the central apse broadened, giving three lights to the window there, and the string-courses multiplied; then another narthex was laid across the west end and turned up along the north side, graced with four western gables and a gabled southwestern porch, and a dome in the centre of the north. Inside, however, the eleventh-century church explains itself as essentially cruciform, of four barrel vaults, the members in the angles sustained by columns at the crossing. The planning results in a delicious elusive mystery-shrine, where something is always out of sight or unexpected; and the walls within seem hardly more than piers and screens; and brickwork without is cut and set like spells in Cufic lettering.

These churches, then, all manifestly reveal themselves more and more as sanctuaries of a religion of the mysteries, with inner shrines and sacramental arcana far withdrawn, with chambers for the adept and a space for those not yet initiate, and outer halls and vestibules where those indifferent or undetermined may subject themselves to influences from within, and listen for the voice that speaks only in the hush. Not so much the grace of recollection is fostered here, as the poignant and insistent power of sacraments and secrecies, drawing, uplifting, bemusing, and at last satisfying.

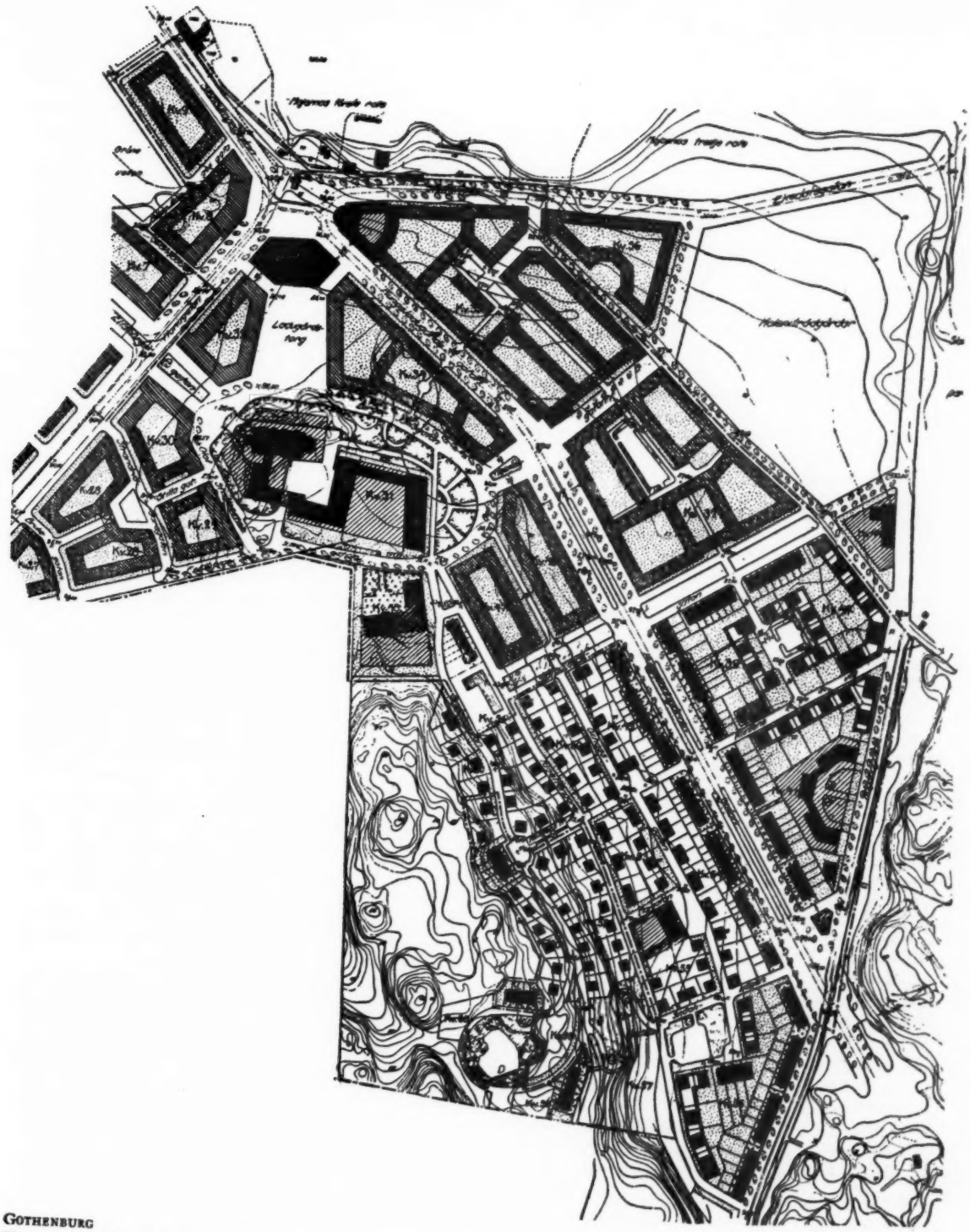
The grace of recollection, however, may well be sought in Daphni, that lies half-way on the road to Eleusis. Built at the very close of the eleventh century, so that the gold mosaic derived straight from Constantinople was designed and set within the limits of the twelfth, the convent came thereafter to serve for sepulture to the Frankish Dukes of Athens. Two years after it was commenced (in 1062) the Normans had been beaten off from Larissa in Thessaly; perhaps they saw there also and carried off in memory the triple windows higher at the centre, which figure in the apse and transept faces at Daphni, and were to grace at Caen the clerestory of Duchess Matilda's abbey and that of William the Conqueror.

To see the steady advance of the style, in progression through these Greek churches, is easy; how they grow larger, serener, more centripetal and more secure. Here the dome is carried not on Byzantine pendentives indeed but on oriental squinch-arches at the angles which mosaic covers and disguises, and eight piers sustain it above the central space. The function of buttresses is met by the mighty arch which rears itself up all the transept face to turn just under the eaves, enclosing door and windows as in the Romanesque building of central France; the string-courses encircle the whole of the window; a band of brickwork runs around the apse; a marble cornice goes along and about the whole.

Here the dome is the main interest. Four lofty arms reach out, cruciform, to make the barrel vaults of transepts and short nave and sanctuary; low western cross-vaulted aisles correspond to the flanking apses, and a second parallel pair of aisles, free and spacious, abutting the transepts where these cut them, and the two-storied narthex which they continue, show how the five-aisled church was adjusted into a plan highly centripetal. The sanctuary broadens into shallow niches at right and left, under such shallow semidomes as recur at the western end, but converge there upon the doorway to the narthex, precisely as nearly four centuries later the great mosques at Constantinople adjusted dome and successive supporting semidomes to a rectangle; both forms indeed deriving directly from S. Sophia. These mighty curving surfaces of deep dome, wide semidomes and lofty barrel vault, covered all with gold mosaic, would well become our own churches, for the eye rests on them in pleasure and is drawn ever toward the centre; the story they tell is of the Lord of All, *Christos Pantocrator*, abiding at the heart of things, sustaining the fabric of the world, while about him range his ministers and servants, distinguishable each from the other by dress and symbol; and in the outlying parts narrative scenes relate what all men ought to remember. In the narthex the heroic tone is exchanged for the lyrical, and the life of the Mother is unrolled in delicate sequence.

About thirty years ago restoration became necessary, and was accomplished with discretion so far as the church is involved; the buildings of the monastic group, however, are falling down, with the walls that once enclosed them. Tourists tramp and huddle through the little courtyard without an eye for its pollards, cypresses, and eucalyptus, or the outside staircase leading along the church wall to a gallery by which the monks in the eastern range of cells were wont to come and go. If they have motored down from Athens complaining of the acrid dust, they have missed all the strangeness of that world of red-and-black in which they moved; red rock and black cypress, red earth and black juniper, and sparse poppies red as those that dye the field of Marathon; with groves of those little Greek pines that look like the Japanese, delicate-leaved, where the trunks twist and the foliage is a feathery silhouette as you look through. Few flowers are there; broom flaunts scant yellow blossoms by the roadside, and around the marble well, outside the convent, may be found a small scabious and the constant, elusive blue eye of love-in-a-mist. The wise will stay half an hour, quietly sitting on ancient marbles among the voiceless cypress trees, or in the hushed pale-lighted narthex, or under the brooding glimmer of the dome, with its imperturbable figures about them, to wonder about the Victim, who is also the Redeemer, the Mother who has lost her child, before motoring onward to Eleusis. For, as a French Academician once remarked, religions may change, but worship is the same.

GEORGIANA GODDARD KING.



Gothenburg
Plan of a Municipal Development

Housing in Sweden

(*Continued from page 22*)

yearly, have been granted to builders of such dwellings, almost exclusively to communal or semi-communal enterprises, "own-a-home" associations, and to cooperative building societies. Urban agglomerations of all kinds, as well as many rural communities, have enjoyed such loans and subsidies. Regarding the results no complete statistics are as yet available, but figures obtained so far indicate that operations subsidized by the State produced about fifty per cent of all the dwellings erected in Swedish cities during the period 1918-20. The significance of this figure lies in the character of the houses it represents. The State has not subsidized the creation of tenements. Subventions have been granted only to builders of houses containing one or two dwellings. Besides, the State has, in recent years, constructed dwellings for its own employees on a larger scale than previously. Still in 1916-17 such production represented merely two or three per cent of the whole output through public operations. In recent years it has risen to about ten per cent.

Among municipalities that have been especially active, the city of Gothenburg (about 200,000 inhabitants) is a notable example. Gothenburg has, like many other cities, not only built on its own account, but has also granted loans or subsidies to home builders, and has ceded, or leased, or sold land on easy terms, or has guaranteed building loans. In the period 1915-1920 this city erected 1,080 dwellings at an aggregate cost of nearly 6,600,000 kronor, of which 420,000 were provided by the State. The communal subsidies granted to home builders amounted to 818,000 kronor, the loans aggregated toward 4 millions, the land ceded to home builders was valued at nearly 700,000 kronor.

Finally, Stockholm (about 420,000 inhabitants) has achieved results along the same lines on a similar scale. Like Gothenburg, Stockholm has in the same decade made great acquisitions of land, so that the city now owns outlying grounds for housing purposes, larger than its built-up area. As land values and rents are very high in Stockholm, the significance of this policy is well illustrated by the fact that the extensive grounds, acquired about ten years ago, cost merely .072 cents per square foot. Their aggregate value at the time of purchase was toward 12 million kronor, their total area being over 9,000 acres. The city, besides possessing much ground in its densely built-up area, also owns other outlying tracts of about 18,500 acres, and thus may certainly be considered as one of the greatest land-owning municipalities in Europe.

NILS HAMMARSTRAND.

Our Modern Style

Is there not something a little suspicious in the sudden awakening of our critics to the fact that America has developed a unique architectural method and style? The history of architecture in this country should put us on guard against attaching much importance to contemporary estimates of its value. With a little effort one may recall that the brummagem Gothic of the Smithsonian Institution was hailed as an honest return to nature by Robert Dale Owen, who had much to do with the design of that building, and that the ponderous masonry of Richardson was regarded by the Gilded Age as a National Style, rather than the accidental development of a single personality. Indeed, our best periods have not been conspicuously given to self-esteem: the crafty vernacular of the seventeenth century and the remarkably intelligent "vernacular" developed by Stanford White and a few others in the late 'eighties for the shingled country houses of the seaboard have never received the praise that they deserved.

It is in our metropolises, with their skyscraper developments in office and loft and apartment house and hotel, that our critics find the evidence for a genuine modern American architecture; and I cannot help thinking that they are looking in the wrong place. The economic and social reasons for finding the skyscraper undesirable were admirably set forth in a recent issue of the JOURNAL; but the esthetic reasons are every bit as sound. In a recent article in *The Nation,* Mr. Henry S. Churchill has said all that can be said for decorative and structural aspects of the "Temples of Mammon" that are now supplanting the "Temples of Ammon"; but his praise boils down to the fact that the skyscraper has ceased to be as bad as it was when it was first constructed.

It is true that the uneasy hemming and hawing of ornament which once agitated the whole façade has now given way to a concentrated gesture about the entrance and the pinnacle; and buildings which had been designed in a topheavy fashion out of a desire for floor space and rents have now, as a result of the zoning laws, taken the form of a tower or pyramid. That this is something of an advance is beyond dispute; one need only compare the Fisk Tire Building with the United States Tire Building, representing respectively the later and earlier works of the same architects, to see what a virtue can be made of legal necessity. But a great architecture is something to be seen and felt and lived in; and by this criterion most of our pretentious buildings are rather pathetic.

When one approaches Manhattan Island, for instance, from the Staten Island ferry or the Brooklyn Bridge the great towers on the tip of the island sometimes look like the fairy stalactites of an opened grotto; and from an occasional vantage point on the twentieth floor of an office building one may now and again recapture this impression; but need I point out that one can count on one's fingers the number of buildings in New York that one can approach from the street with similar satisfaction? For the millions who fill the pavements and shuttle back and forth in tubes, the skyscraper as a tall cloudward building does not exist. Its esthetic features are the entrance, the

elevator, and the window-pocked walls, seen close at hand; and if there has been any unique efflorescence of taste or beauty at these points I have yet to discover them. What our critics have learned to admire in our great buildings are their photographs—and that is another story. In an article chiefly in praise of the skyscraper in a recent number of THE ARTS the majority of illustrations were taken from a point which the man in the street never reaches: it is an architecture, not for men, but for angels and aviators!

If an architecture is to be experienced directly, and not through the vicarious agency of the photograph, the skyscraper defeats its own ends; for a city built so that tall buildings could be approached and appreciated would have avenues at least as wide as Longacre Square; and a city so generously planned would have no need for the sort of building whose sole economic purpose is to make the most of monopoly and congestion. I say nothing about the way in which these obdurate, overwhelming masses take away from the little people who walk in their shadows any semblance of dignity as human beings: is it not inevitable that one of the greatest mechanical achievements in a thoroughly dehumanized civilization should—no doubt unconsciously—achieve this very purpose? It is enough to point out that the virtues of the skyscraper are mainly exercises of technique; they have precious little to do with the human arts of seeing, feeling, and living, or with the noble architectural end of making buildings which stimulate and glorify these arts.

A building that one cannot see, a building that reduces the passerby to a mere mote, whirled and buffeted by the winds of traffic, a building that has no accommodating grace or perfection in its interior furnishing, beyond its excellent lavatories—in what sense is such a building a great work of architecture, or how can the mere manner of its construction create a great national style, were such an end desirable? Consider what painful efforts of interior decoration are necessary before the skyscraper apartment houses can recapture even the faded perfume of a home. Indeed, it takes no very discerning eye to see that in a short time we shall be back again in interiors belonging to the period of the whatnot and the ottoman, in order to restore a homely sense of comfort to the eviscerated structure of a modern, fireproof apartment. What chiefly distinguishes our modern American work from that of the disreputable 'eighties, is that the earlier architects were conscious of their emptiness and attempted feverishly to hide it; whereas our moderns do not regard emptiness as a serious lapse, and are inclined to boast about it.

There is a sense, of course, in which these modern Collossi express our civilization. It is a romantic notion, however, to believe that this is an important or beautiful fact. Our slums express our civilization, too, and our rubbish heaps tell sermons that our stones conceal. The only expression that really matters in architecture is that which contributes in a positive way to the good life; that is why there is so much beauty to the square foot in an old New England village, and so little beauty to the square mile in our modern metropolises. A building stands or falls, even as a work of art, by the city that surrounds it. When intelligent city planning restores our sense of the human scale, and the design of each particular building is made commensurate with the purpose and function of the city as a whole, the intention of our modern style will perhaps be realized.

LEWIS MUMFORD.

"Beating the Architect"*

"A shameful incident has just come to our notice. A Lutheran congregation decided to build an imposing church. They retained an able architect, who is a member of the American Institute of Architects, and told him to prepare plans. They were willing to spend enough money to put up a church of real merit, and of imposing size.

"The architect gave his entire time to the project, for a number of weeks. He turned down all other work, so that he might give the best that is in him to this project. He advanced the money for his draughtsmen's time, his engineer, his stenographer who typed the specifications and to the company that furnished the drawing paper, the tracing linen (at $1.25 per yard), and printed the blueprints for him. He advanced money for preliminary surveys and topographical surveys, and for various fees at the city hall and court house.

"After the congregation received the drawings, the matter came to a standstill. The architect figured up the actual amount of money which he had advanced. It amounted to a little less than two thousand dollars. He waited some weeks, and then presented the bill. The congregation flatly refused to pay a cent. They have abandoned the project, for the present at least. They were only after ideas, anyway. And these they got at the expense of an honest architect, who advanced almost two thousand dollars out of his savings account, to give the congregation their desired ideas.

"This transaction is an outrageous one. It is a disgrace to the Lutheran name. And we say, with shame, that it is a Lutheran congregation that turned this infamous trick.

"Such cases are not as rare as the outraged reader may suppose. We have just been busy, acting as referee in another one. One of the congregations on our list of applicants, a Lutheran congregation, came to us with their troubles. They had retained an architect to prepare drawings for their church, which he did. They decided not to build and discharged their architect. They paid him half of what they had agreed to pay, and refused even to return his drawings. And they wanted us to assist

* From *Lutheran Church Art*, November, 1923.

them in preventing the architect from getting his drawings back. It seems that they had found a jerry-builder, who promised (with the aid of shams and substitute materials) to build a flimsy shell of a building for less than their architect's drawings were estimated. And to save the architect's one per cent supervision fee they discharged him.

"It is hardly necessary to say that the secretary of the Committee on Church Architecture brought pressure to bear on this congregation, which resulted in a settlement with their architect and a return of the drawings. No, such cases are not rare.

"A great Lutheran church was dedicated some time since, and its pictures published far and wide. And thereby hangs a tale. Their architect labored hard for two and one-half years. He paid office help in good money and advanced all the other money for getting out the drawings and seeing the work to a successful finish.

"The church was dedicated with great bombast. There was an imposing processional of vested singers and many robed clergy. But the poor architect, far back in the great church, was not happy that day. The congregation had whittled him down on this point and that, caused him to subscribe to this fund and that, and finally caused him to put in a memorial window. Deducting all gifts, contributions, discounts and the cost of the window, the architect had exactly $800 left as his total commission, $800 for thirty months' work. What architect can pay draughtsmen's time, office help, engineering and blue printing, to say nothing of office rent, for $26.66 2/3 per month?

"Whenever we see the picture of that noble church, we cannot help thinking that it cost the congregation but $800 in architect's fees, whereas, by all honest calculation, it ought to have cost them, at the very least, $8,400 for architect's services! What stories are behind some of our fine churches, and smaller ones as well!

"A fourth Lutheran congregation, one with which our Committee has had dealings, asked a craftsman to design certain parts of their interior. He spent some time doing this, and sent them the drawings. They not only refused to pay him for his designs, but they turned them over to ignorant laborers, to execute in imitation materials!

"A fifth congregation, desiring a most elaborate window, asked for a large, special design, in colors. It cost the glass worker nearly $500 in actual cash, to say nothing of five weeks' wasted time, to get it out. He sent it on, and that was the last he ever heard of it. These good people also 'just wanted to get ideas.'

"A sixth Lutheran congregation had special drawings made for their church. After some time they sent them back with a brief note that they were not suitable. They did not pay for them. But it seems that these people, also eager for 'ideas,' liked the design so well that they had somebody's draughtsman get out drawings at a nominal price. They cribbed the whole thing, and at the expense of the man who got out the drawings in the first instance.

"We have a few more choice instances in mind, but let us drop this dangerous subject. Some architects and craftsmen have said bitter things on the subject of honesty. One well-known architect, who has built at least one well-known Lutheran place of worship, has quit entirely. He said: 'I'm through. Church people will beat you every time.' And so he sold his collection of books on the subject and gave his attention to other things. Another architect, and a prominent one, has thousands of dollars on his books. It is money which churches are 'holding back' for one reason or another. Every letter from him brings back a request that he 'deduct a few hundred dollars because it's for a church.' 'You are helping along a good cause,' they tell him.

"We will try to be charitable and say that in many cases it is thoughtlessness. Congregations do not realize that it costs an architect close to six per cent to get out the designs for a new church and to attend to a multitude of other things connected therewith. If your church costs you $100,000, you may rest assured that before dedication day your architect has paid close to $6,000 out of his own pocket to make it possible. And is he not entitled to a small margin of profit, above bare expenses? It costs a glass man a great deal of money to prepare a carefully designed drawing, in colors, or to 'make up a sample,' and perhaps to travel two hundred miles to confer with your committee. Let us get these facts fixed in mind, so that we may deal honestly with all those connected with our building project. There is no harm in 'just getting ideas.' But we ought to be willing to pay for such ideas. It is dishonest to get them at the expense of others."

The Architect's Office

Its Organization and Management

In developing the practice of architecture one is confronted first with the almost universal idea that the great masterpieces of architecture were the results of the genius and unaided efforts of individual architects. It may be true that "a great work of art as a rule comes from a single brain," but a historical survey of architecture shows indisputably "the cooperation of many minds in the design and execution" of most works of importance. This old idea of many minds collaborating is the keynote of all modern building, and as time goes on, more and more will this coördination of efforts obtain. One is inclined to feel how simple were the problems of the old-time architects compared with the complexities of the modern practice. How short a time it is since the invention of the plumbing fixture developed a complicated piping and tanks and valves and pumps and what not and started a science of sanitation and a new engineering profession! How short a time it is since steam became the foundation of our heating systems and had to be piped about our buildings and the science of heating and ventilating was begun! Only a few years ago steel revolutionized the entire constructive methods of building and the

structural engineer came into existence! It is not long since electricity took the place of gas and became an inseparable part of our life. Electrical engineering became necessary in our buildings. How long is it since the elevator brought its added complexity of making us design buildings in unheard-of vertical dimensions? How long is it since the necessity of creating dividends enforced the necessity of knowing all about the costs of using and maintaining buildings and of their exact adaptability to the purposes for which they were to be used; from this has grown the science of industrial engineering and the industrial expert is a part of the building operations. Many of these new sciences and arts require years of study and application to apply properly and efficiently, and they have become serious and separate professions, growing side by side with that of architecture, and because they have not had time to acquire traditions they are growing faster than the older profession.

The Architect at the Helm

The burden of knowledge required for any serious building operation has become too great for any one mind to carry, and therefore the modern building operation is now necessarily one of cooperation of men of many talents, each expertly informed in his art or science. The architect still remains the designer of the building; its conception is of his brain, the execution of it remains in his hands as the master coordinator of the diversified arts and sciences inherent in the building and of the experts who apply them. The architect accepts these aids in his work and must give them due credit and responsibility. He must himself learn the principles of these new sciences which so vitally affect the success of his project, in order that he may coordinate them intelligently into his design. His education and training must be more exact and his apprenticeship longer that he may qualify in the competition of the professions.

The New Social Exactions

The qualifications required of the architect of today reflect the added responsibility imposed by modern industrial conditions, in that a third qualification representing some of these new responsibilities must be added to the two old primary qualifications to practice. Briefly stated, these three fundamental qualifications are: First, knowledge of the principles of design, which is based upon the accumulated knowledge of many centuries of study of scale and proportion. Second, knowledge of construction, which must be ever more technical and exact as the sciences become more specialized and ever changing as new materials and methods are developed. Third, knowledge of economics, which must include exact knowledge of the cost of materials and labor, the availability of each, the costs of the operation and maintenance and of the depreciation and obsolescence of buildings in order that they may be of permanent value in the economics of society. Of these three fundamental qualifications, the first alone is never changing except as the old principles of design are applied to meet the requirements of economics and new construction thought; construction constantly is becoming more complex and exact, as it must meet the requirements of use and the economics of industrial competition; economics is ever alert to develop new properties, and sure vision and exact knowledge must go hand-in-hand. The modern architect must, therefore, know design as the foundation of all permanent beauty in building; he must know construction, as that "is and always must be the essence of good design and any vital architecture"; he must know and understand the economics of modern living and business, because the complexities of modern business are reflected in the problems to be met by him in a degree that will tax his entire ability, for the bulk of modern buildings must be economically successful in order that any permanency of life be given them.

So the practice of architecture has grown out of the older simplicity into the modern complications. It has not willingly grown, but has been forced to do so in order to keep its life. A profession governed so largely by tradition as is architecture is ever conservative, and takes unto itself new thoughts, new responsibilities and new methods only with the utmost deliberation, showing the greatest reluctance to accept the new ideas of practice and the new responsibilities which the newer professions of science and art greet with acclaim. In the contest between the efficiency of science and the inefficiency of tradition, the public mind has turned to science with profound respect and the architect must needs create new tradition for his profession.

The Client

Although the architect has assumed new responsibilities without number, his relations to his client and the fundamental functions of his practice remain unchanged. He is still primarily the Adviser of his client as to the proper solution of the building problems; simultaneously, in many instances, he is the Agent of his client because of his dealings with other persons on his client's behalf; he remains the Interpreter of the contract as it controls the erection of the work. In this latter capacity he acts quite apart from his other two fundamental functions, and represents in this responsibility both his client and those who are constructing the building. In the exercise of the third of these functions by the architect his exact knowledge of modern materials and constructive methods and his integrity of purpose is severely tested, and the pressure of the constructive industry today is being strongly brought against this third function, in order that his finality of decision thereunder shall be limited to certain aspects only of the contract documents.

Administration of the Completed Building

These, then, are today the fundamental functions exercised by the architect. Do not industrial conditions indicate a new function which more or less will be assumed by the architect—that of continuous administrative duties of operation and maintenance after the building is completed? The time does not seem far off when this new function may become as important as is now the administration of construction work.

The Building Industry

In the construction industry the relations of the architect to contractor and manufacturer and to labor have become far more closely interwoven as materials and

methods have multiplied. The building operations of the past, if of any importance, took years of effort under hand labor conditions; the modern building is built with tools and mechanical appliances, and its construction is a matter of months instead of years. The architect must ever keep ahead of construction, and no longer is a baker's dozen of buildings a life's work for him. The duration of the building operation and the economy of its erection are dependent as never before upon the architect's knowledge of the conditions of the material and labor markets and of the adaptability of the various constructive methods and mechanical appliances to his project in hand. The proper co-ordination of the various parts of the structure and the trades concerned is a matter of vital importance to the architect and the owner as well as to the contractor. Thousands and thousands of dollars are spent to no avail because architects, through ignorance, cowardice or deliberate intent, do not perform their duty of advising the owner as to the best and most efficient and economic solution of his building problem and its cost, or of interpreting fairly the conditions of the building contracts during construction.

Thus because of the diversity of the requirements of industry, the rise of the new sciences applicable to building, and the complicated economic problems of modern buildings, the practice of architecture has itself become an industry. It no longer has the simple responsibility of many other forms of art—the painting, the picture, the sculpture, the poem, the tragedy, are still individual simple expressions of the arts, and society is not particularly harmed if any of these be not successful. Not so is it in case a building fails to function! A building operation has no longer, and never can have again, simplicity. Forcing the architect to become a part of its economic life, society demands that he must assume great economic and educational responsibilities; how long the architect will continue to lead in developing an ever-increasing appreciation of pure beauty in the fine and applied arts will depend entirely upon his acceptance of these new responsibilities and his management of them.

Construction of buildings is assumed to be the second greatest industry in the United States. Statistics show that the planning and direction of the construction of a vast volume of this work is passing out of the hands of the independent practitioner in architecture. The competition of the more exact sciences, such as structural and industrial engineering, is pressing and increasing, and if the architect desires to retain his place in this vast industry and his independence, he must revise his traditions and his obligations and give service in the form demanded by the business world. Competition from these sciences is as severely noted by the architect whose practice is so limited that he himself is the entire office and working plant, as it is by those offices which have expanded into great organizations to meet the calls upon them. The pressure of the building company, the ready-cut company and the mail order catalogue, is just as ominous to the builder of homes as is the competition of the engineering professions to the architect of great commercial buildings. The architect will survive as the creator of the mass of our homes and commercial structures only as he manages to render greater service to society than do the competing sciences. If he cannot expand his profession and practice so as to give the services as, when and in the form required by modern business competition, architects will become luxuries, and the practice of architecture as an independent profession will become more and more limited to those who can afford and do indulge in luxuries.

All this the profession vaguely senses; while loath as a body to face the issue squarely, many individual practitioners are accepting the challenge and are endeavoring to find a way to meet the severe competition and retain the essential traditions of the profession. "The public does not understand architecture" nor "does it understand why an architect should be called to design its building work," will be the complaints of the profession until, by the service it gives, it forces its own recognition upon the public mind. Beauty of design and the art of architecture in the abstract and of themselves will not interest society in architects for many generations.

Organization

Architecture has then become a business, and, as it is our hope that all business will finally realize that beauty of design in its products actually enhances the economic value of those products, and as the principles of design and applied arts taught the architect beauty of design of industrial products, it is paramount that the architect, as a professional man, accept the conditions imposed by industry and render a service and an example so noteworthy that industry will be guided by him to give that beauty in all man-created things which the developing art-sense of our people eventually will demand.

Andrew Carnegie is credited with saying that if he had to lose his plants or his organization, he would prefer to lose the former; plants could be the more easily replaced. He meant that organization is the foundation of business. Upon organization depends the service given, and upon service depends the vitality and the life of the business itself. No business ultimately can live that does not give the greatest amount of the most exact service possible for the amount of remuneration received therefor. Service depends upon organization, organization depends entirely upon management. The skill of management therefore will be directly evidenced in the service given; the better architecture is managed as a business, the greater service it will give and the more stable and sure will become the foundation upon which it can surely grow into and become a vital and dominant force in business and in society.

Management requires integrity, high ideals, common sense, exact knowledge, competent counsel and planning and a square deal that the organization may reach its highest point of ability to give service. Management must leave nothing for chance to decide. In architecture it must carry out the conception of the architect as expressed in pure design into a completed building by finding the best and cheapest way of accomplishing that constructive operation and providing the means of so doing it. Management fixes the earnings of the architect and as an architect must make his living from the earnings of his practice that living will be dependent upon how carefully he organizes his work and how efficiently he manages that organization.

The architect whose office is himself should seriously

undertake the organization of his time and his energy. Steady development of orderly arrangement will give a certain path to efficient service. The architect who has large and important work has but grown up from the small beginning, and if during the lean years he has developed an orderly procedure of doing business based upon the well-thought-out organization scheme, he can assume the management of the larger organization with full confidence of success. In the future, just as now, variations in fees received by the architect for services rendered by him will always obtain and more and more it will become a custom that the amount of remuneration received will be governed entirely by the quality of the service he renders, and careful management will be increasingly necessary. The architect need not worry about the size of the fee; society always will pay adequately for services rendered to it if those services be what it desires.

An architect with an exhausted bank account needs organization and management more than the one who, with ample capital, can absorb the unnecessary costs of his practice. The architect who has built up a business large in volume has done so often without a definite program of organization. He has created his business—he has nourished it and built it up and is very apt to feel that the service he has given is the best that can possibly be given. Often it is the best under his methods of operation, but is it, when compared with the quality of service given by the other more exact technical professions? The successful architect who feels that the service he is giving cannot be improved upon (but which does not always survive a comparison with those other services) and that one who perchance does vaguely feel that the service he is giving is lacking in the exactness or accuracy or fullness of some of its parts, but nevertheless decides that the rendering of the more efficient, accurate and complete service would be but an added expense to him and would cut into his profits, is doing more harm to the public appreciation of the profession than is the humble practitioner who may not be so fully qualified in all the fundamental essentials of an architect. Every man believes somehow that his own individual business is different from all others, and even from those in his own line. It is so only in details; the principles of organization applicable to large business organizations apply equally to the smallest. Therefore, again, an architect should organize his practice and his office procedure and, while in many instances such an organization exists only in his own mind and may never be placed upon paper, if he does study out and apply the principles of organization and systematize his practice and procedure and will strictly manage his work in accordance with these principles and his system, he will find that organization and management will turn many a losing job into an earning one for him.

The Individual Problem

What is the architect's organization? It involves two very distinct functions or branches:

First: Organization of his own business so that his living may be assured, and

Second: Organization of his client's building operations so that planning and designing without extravagance, economy and diligence of construction will be assured him.

The measure of the success attained in each of these two distinct branches of the architect's practice depends entirely upon the architect's ability to manage them as an executive. Outstanding, it must be evident that if the architect cannot successfully maintain the first of these functions he cannot be worthy or capable of managing the second.

These two functions of the architect's practice have clear distinct divisions of work and responsibility, each of which may be assumed to be departments. These departments are:

First: The securing of the job—wherein the architect sells his artistic, technical and business ability.

Second: The planning of the job—wherein the architect first conceives the design and then sells it. Once this is sold, the architect has nothing else to sell; his functions as seller cease, his functions as buyer begin.

Third: The labor of the job—the making of the working drawings, and the specifications and the coordinating into them of the various arts and sciences whereby the architect becomes the purchasing agent of the owner and a buyer of many products and of a vast amount of labor.

Fourth: The contracts of the job—the awarding of contracts and the preparation and recording of the documents thereof, whereby the architect himself complies with and in turn requires compliance with all laws and regulations pertaining to buildings and their construction and to the occupancy and maintenance of property from all others concerned in the building operations.

Fifth: The supervision of the job—the constant watching of the construction processes, materials and workmanship until the completion of the construction; whereby the architect insures for the owner that all those materials and all that labor and workmanship which have been purchased by him through the agency of the architect are being rendered satisfactorily to him.

Sixth: The administration of a job—the keeping of records and books, issuing of orders, notices and certificates, the general correspondence of the office, whereby the architect maintains an exact accounting both of his own and his clients' obligations, each day accurately completing the records so as to leave nothing to chance and future negotiations.

Each of those six chief departments of the architect's business organization has many distinct branches of work, in each of which the accuracy and soundness of the architect's judgment and the exactness of his management, exercise dominating influences upon his earnings and the capacity of his organization to render service. Let us examine some of these further functions or subdivisions of the work of the various departments.

Securing the Job

First: The securing of the job. The usefulness of the architect to society becomes greater as his imagination and accurate vision originates the job; he performs no more commendable economic function than that of suggesting the development of a property that will be profitable to an owner and creditable to the community. This function will suggest distinct subdivisions of work in this first department, many of which in the larger organizations have active managerial heads.

(a) An exact knowledge of real estate and its value, of rents and operative and maintenance costs of buildings, of the amounts chargeable to their depreciation and obsolescence, of the needs of the community for various kinds of building, of conditions in other communities which might give suggestions, and, finally, a vision of the future community and imagination to plan its development.

(b) An exact knowledge of the financing of building projects and the qualification to bring properties and finance together and to work out with the owner and financial interests the financial scheme that will properly develop the property to economic use.

(c) An exact knowledge of the costs of materials and labor and workmanship and the ability to appraise quantities, so that an accurate estimate of the costs of the proposed work can be given; an estimate so accurate that it would correctly guide the entire building operation and would protect the total expenditures of the owner just as surely as if the architect assumed that function of guaranteeing the costs of construction which belongs to the contractor.

(d) A development of a selling system so that there may be placed properly before the public an accurate account of the ability of the architect and the quality of service given by him.

Planning the Job

Second: The planning of the job. The organization of the architect must immediately make available to him all laws and ordinances bearing upon the problem in hand, and the solutions of similar problems by other architects; the architect should by various and continuous studies and consultations arrive at a development of the property that would give beauty to the building; that would give light and air to its occupancy and insure to each of the human beings using the building an abundance of these two essentials to right living and right working; that would insure stability and economy of construction and operation and maintenance and a maximum earning capacity. All essentials of the problem and design should be fixed and agreed upon at this stage of production, in order that the working drawings shall be a steady development of the preliminary sketches.

The Labor of the Job

Third: The labor of the job. This department of the architect's organization is generally the most intangible and poorly organized part of his business. This in spite of the fact that it is responsible for a very large proportion of the ultimate cost of the architect's practice. In preparing the working drawings and specifications, two distinctive functions of production, each should be thoroughly systematized and constantly checked back one against the other for errors or commission and omission.

The production of drawings involves these clearly distinct functions:

(a) Sanitary work, with many subdivisions of work and responsibility such as the correct and accurate designing of the water, plumbing, waste, drainage, gas and other systems.

(b) Structural work also with many subdivisions such as the designing of structural steel, reinforced concrete, masonry and wood framing.

(c) Mechanical work, again with numerous subdivisions, including the designing of systems of power, air, vacuum, heating, ventilating, refrigerating, elevator, acoustics, etc.

(d) Electrical work, with its subdivisions of light, power, telephones and other minor electrical systems; (e) Landscape work; (f) Interior decorative work; (g) Sculpture; (h) Painting; (i) Fixture work; (j) Furniture work; (k) Modeling work, and finally

Architectural work, whereby is brought together all of these various coordinating divisions of productive work into a completed set of working drawings.

The production of specifications requires that knowledge of methods, the market, materials, and labor of which so much has been said in this paper, as well as an intimate knowledge of working drawings. This knowledge must be evidenced by a clear, accurate statement of the constructive methods to be followed and those things which explain the intent of the drawings and the construction work, but which cannot be properly shown upon the drawings. Protecting, adjusting and coordinating these two elements of production should be the checking work, upon the accuracy of which rests the final responsibility of accuracy in all parts of the drawings and specifications. Too frequently this checking is never done until the contractor finds the error, omission, or discrepancies during construction.

Each of these subdivisions of this third department of production, in the architect's organization, should function under responsible heads who are directly responsible for the accuracy, cost, and time of completion of these drawings and specifications. These heads should report in writing at short regular intervals to that assistant of the architect to whom is delegated the responsibility for the production work, that he may check and analyze the progress made. If the work in the architect's office does not justify the retaining in his organization of the experts necessary to design competently and be responsible for each of these various portions of his work, he must obtain such designing ability from well-qualified independent experts whose reliability and integrity are beyond question and whose financial interests cannot lie in any of those products or processes which are integral with their designs or which may be specified by them. The responsibility for production, of course, rests finally upon the architect himself and the amount of money that he will earn from his commission and the accuracy and the excellency of the service which he will render depend to a large degree upon how carefully he has organized this portion of his work, how definitely he has defined the responsibilities of those who are administering it for him, how promptly he gives orders and instructions to them, how accurately and diligently he makes his decisions upon matters of policy and detail during the production period, and how accurate and recent is his knowledge of constructive methods, materials and labor and the condition of the markets. As an efficient manager, he will keep accurate costs of production, as well as of all other departments; will at short regular intervals analyze them; will carefully budget the expense to be incurred and

schedule the time to be allowed for the production of drawings and specifications and will insist that every department shall function within its budget and the time allotted. The general adoption of a budget and time system will eventually work into that much-to-be-desired system whereby all members of the organization can be given the incentive to cooperate in giving service that a direct compensation based on the quality and quantity of service given will bring.

The Contracts of the Job

Fourth: Contracts of the job. This department must constantly consult counsel that it shall have accurate knowledge of all legal requirements appertaining to the contracts of building so as to set forth clearly in the contract documents the responsibilities and duties of the parties thereto; so as to give a clear statement of payments and of conditions that govern the work; so as to insure adequate protection of private and public properties and interests and those of each party to the contract; so as to give properly and when required all notices required by law and contract; so as to obtain all inspections and certificates required by law or contract; so as to insure the accuracy of all descriptions and titles; so as to attend to all bonds, insurance and guarantees; so as to secure surveys and accurate information regarding all conditions at the site and restrictions thereon imposed by laws, ordinances or other legal documents.

The Supervision of the Job

Fifth: The supervision of the job. The supervision should be distinctly differentiated from superintendence; the one denoting occasional, the other continuous, inspection. A most common request of the architect is that he eliminate the furnishing of supervision and superintendence from his service; so common has this request become that supervision is the hardest part of the architect's service to sell, in spite of its great importance to the owner. This is primarily because this portion of the architect's service has been so poorly rendered that he has not impressed upon the public the importance or necessity of it. Correct inspection should be as carefully subdivided in its function as is production and an architect should no more expect an inspector to know all trades and materials than he would expect a draughtsman to know all of the engineering sciences. Every trade during construction should be supervised by one who is expert in that particular trade; the concrete, the masonry, the steel, the plumbing, the mechanical equipment, the electrical equipment, the mill work, the painting, the elevators, each of them should be just as carefully supervised by experts during erection as they were considered by experts during design. Only by such close, careful and expert supervision of the trades can the architect insure to the owner that the value of money which the architect has obligated the owner to spend for these things is being returned to him in substantial performance. The organization of this department and its proper management is a crying need in most architects' offices. Segregation of contracts entails additional organization in this department and requires very efficient executive ability in the managing.

The Administration of the Job

Sixth: The administration of the job. This department is one of many functions. Bookkeeping, record and cost keeping, the keeping of progress, test and other reports, stenography, typewriting, books, photographs, clippings, magazines, samples, blue printing, catalogues, correspondence, the correct accurate filing of each are but a few of the multitudinous subdivisions of this department. Clerks of the work belong to this department. File clerks are more important to the efficient management of this department than is commonly understood. Books should be specially devised for architectural accounting and regularly audited. The telephone operator and counter clerk should be made important positions; the office contacts with the public at these two points. On this department rests the burden of accurate accounting and recording of all phases of the building operations and the rendering of these reports regularly and on time to those who analyze the reports; on it rests the coordination of all reports and records and the follow-up of all activities; on it rests the duty of cost-keeping, and no division of the architect's business is probably as little understood as is the making of accurate costs of the different subdivisions of his practice and of the building operations. It is impossible within the limits of this paper to go into the ramifications of this very important administrative department to consider the many printed forms and documents that become an integral part of its functioning, interesting as this discussion would be. Nor is there opportunity to consider the analysis of these reports and records and the conclusions to be derived from them; these important functions of office management are too involved to be considered in this general review of architectural organization.

Conclusion

This is only a most general view of the departments and activities involved in general architectural practice made to suggest the needs of organization and to indicate the functions that must be considered in any system of organization that might be evolved; architects who specialize in any subject will have many other departmental suggestions. Many of the departments justify complete studies of procedure such as cannot be attempted in this paper, the purposes of which will be accomplished if the indications of organization which I have sketched will suggest to architects that they go further into the subject; that they examine their management; that they analyze the service they are giving to ascertain if it can be improved; that they think whether or not they have their own efforts organized to produce without waste; that they examine whether they are giving decisions promptly, and, above all, that they examine themselves with all honesty as to whether they are giving service of such quality as will fulfil the primary obligation they assumed when they accepted the work from the owner. If they are not, let them do so now, regardless of its present cost to them. Not to do so spells failure.

Let me recapitulate what has been discussed.

It has been shown:

That architecture must be conducted as a business, and therefore it must be organized to do business;

That the success of business depends upon the service rendered;

That service rendered depends upon the organization of business;

That the welfare of the organization depends upon its management;

That successful management means the administering of each department of the organization with exact knowledge combined with ideals of service, integrity, common sense and diligence;

That successful management places responsibility upon competent individuals, holds them responsible for results, and adequately compensates them therefor, at the same time coordinating the work of these individuals;

That successful management requires clearly stated instructions and documents, each always committed to writing, with their delivery and receipt clearly accounted for and acknowledged, leaving nothing to remembrance and chance;

That it requires promptness of decision with nothing put off from day to day;

That it requires accuracy in every function;

That successful management assumes full responsibilities for its actions without equivocation or evasion, and demands equal consideration from those with whom it deals;

That successful management knows the detailed costs of every service given by it and of those things with and in which it deals, and by constant and repeated regular analysis of these costs and the services rendered produces these services at the minimum costs;

That management is an art, always a matter of personality; organization is merely the machinery which the personality uses to accomplish the art.

Regardless of the size of his plant, let every architect take these thoughts with him. If he will put down on paper a plan of doing his work, his idea of the organization of his forces, working from the broad functions down to the finest detail, systematizing every effort of his practice, and will compare and discuss this plan with his fellows who have made similar surveys of their practice; if he will fearlessly analyze the quality and quantity of service he is giving and compare them with the most complete service he can imagine the architectural profession should give; if he will analyze his costs of giving these services; if he will budget his income and schedule his own and the time to be spent upon the various portions of the work; if he will reduce every order and instruction to writing and confirm every verbal understanding in the same manner; if he will not start any job until he has made a clear contract with his client definitely stating his own duties, the owner's duties, the compensation to be paid to him with the methods and times of payment of same, clearly providing for all contingencies of termination of contract or work and covering all relations to other interests on the work; and, finally, if he will conclude to conduct his business strictly within these lines he will have established in his business the essentials of good managership and will have done the great step to put himself in the path that will raise the practice of architecture in the public esteem. True success will follow.

EDWIN BERGSTROM.

The Secretary's Page

New Year, 1924! The time for all sorts of new and good resolutions! I have made some myself and I am about to suggest a good resolution for each member of the Institute. A New Year is always a good time to start anything good. I have had a memorandum from our tireless Executive Secretary and I am going to take the substance of his memorandum and tell you about it and then offer the suggested resolution. And so I begin with the next number on the list of Institute subjects, and I know it will contain news to most of my readers.

16. OBJECTS OF THE INSTITUTE. The objects of the Institute are: *"To organize and unite in fellowship the Architects of the United States of America, to combine their efforts so as to promote the æsthetic, scientific, and practical efficiency of the profession, and to make the profession of ever-increasing service to society."*

Do you realize that the Institute has been an active corporation, under a charter issued by the State of New York, since 1857? For sixty-seven years, then, the Institute has been trying to accomplish these objects and the strides it has made in this direction are most noteworthy. It will never achieve full accomplishment, but it can and will achieve a larger proportion of accomplishment each year if its policies are right and if it executes its trust to the profession and to society.

17. THE INSTITUTE'S POLICY ON MEMBERSHIP GROWTH. There are usually several plans of reaching the same objective. In the past, within the Institute, there have been many who believed that progress will be greater if the Institute were an academy with a membership limited to those of great accomplishment in the field of architectural design and the allied arts. They felt that the Institute should be a beacon light on a high hill furnishing inspiration at a distance, but not too much light and not a great amount of warmth. Another group believed in something entirely different.

Since the war there has been a change. Those charged with the leadership of this professional society, without for a moment casting a reflection upon the policy of the past, have agreed that under present-day conditions the Institute ought to be a vital personal thing to the average member and to the architect who is not a member—giving them leadership and comradeship. So, after investigations covering conditions of practice in all parts of the country, registration and license law requirements, the number of architects in practice, the number of architectural graduates each year and their equipment, and the field of draftsmen and junior architects, it was decided that the Institute should adopt a broader policy on the membership question. That policy may be summed up by saying that the Officers and Directors are of the opinion that by the end of the year 1926 the Institute

should have 4,000 active members. It has, at the end of 1923, 2,700 active members.

18. Results of This Growth. This decision to fill the ranks was really made in 1920, at which time there were 1,410 members. Let us glance for a moment at some authentic figures for the year 1920, remembering that the growth of the Institute in the past three years has not been a mushroom expansion. It has been a process of taking in men who should have been in years ago and the process has not been completed.

The U. S. Census Bureau reports that in 1920 there were 18,185 architects in the United States. Using the records at the Octagon House as a basis we knock off 8,185 of these men on the theory that they are builders or carpenters or whatnots. And we agreed that in 1920 there were approximately 10,000 men in the United States and its possessions who were rendering all the way from first-class to whatever could pass as architectural service. Of these 10,000 men, 1,410 belonged to the A. I. A. A comparison with other professions shows that at that time in the proportion of members of national organizations to the total number of men in the United States claimed as being members of a profession only 8.44 per cent of the architects were members of the American Institute of Architects, and this was far less than that of any other professional body. This might lead an outsider to remark that in 1920 the Institute was not doing very much "To organize and unite in fellowship the Architects of the United States of America."

For, be it remembered, it is not possible to know all the outsiders and so to explain to them that there are problems in this matter of organizing the architects in a country where, up to a recent time, comparatively anyone might call himself an architect merely by announcing the event! The Institute has standards of admission in which it believes there lie safeguards to the owners and occupants of buildings, and when it is remembered that the administrators of the registration laws have had revealed to them the startling structural incompetence of so many hundreds of men who elected to call themselves architects just because there was nothing to prevent them from doing so, it is not to be wondered at that the Institute has grown slowly. It must so grow, which is why we all recognize that 4,000 members at the end of 1926 is a fair estimate of the percentage of the profession that can be admitted under the existing standards.

Now, while it may be true that Governmental Departments or State or Municipal authorities exclaim to us when we appear before them to represent the Institute that the Institute does not represent a majority of the profession, that does not mean that we should be stampeded into a wild rush to fill our ranks for the mere purpose of attaining numerical strength. It means that we must grow as fast as it is consistently possible to do, in view of all the conditions, while on the other hand we encourage every outside agency which is tending so to raise the technical and cultural equipment of the architects of the future, that in the end we shall have an Institute wholly representative of a wholly competent profession. That is the ultimate goal of our steps—steps which cannot be taken without the help of the present membership, which is why the Five Year Program is printed on page 16 of the Manual, a copy of which is now in the hands of every Institute member. Three years of the program have been accomplished, and we are a bit ahead of the schedule in membership and in financial resources. Consequently we are that much ahead in capacity "to promote the æsthetic, scientific and practical efficiency of the profession, and to make the profession of ever-increasing service to society."

But there remains to be secured during the years 1924, 1925 and 1926, 1,300 members, an average of say 435 each year. This seems a difficult task; *and it is,* unless it is accomplished on a small unit basis and with the active, whole-hearted support of every Chapter. There are now 53 Chapters with an approximate total membership of 2,700. If each Chapter added to its membership each year for three years one new member for every six old members, the deed would be done by the end of 1926. Of course, it is realized that this would not be feasible in some Chapters that have already placed themselves on a representative basis and whose increase from now on can only be the normal increase of the profession. On the other hand, some Chapters which have increased as little as 3 per cent in the last three years might do considerably better than one new member for each six old members.

In conclusion, may these points be clear: The Institute Board does not advocate membership for a *majority* of the 10,000 practicing architects. It does believe that by the end of 1924 the Institute should have 3,000 members, by the end of 1925, 3,500 members, and by the end of 1926, 4,000 members.

The Board is equally clear that this increase must be brought about by the Chapters, and that the Institute, as a national society, can do no more than point the way and furnish the ammunition. The work itself must be done by the individual Chapters and individual members. Each Chapter should bear in mind that it undoubtedly has within its territory some good men who would be delighted if they were asked to apply for Chapter and Institute membership, and that some of these men, perhaps through a sense of pride, will never take the initiative in such a matter.

Of this one thing your Officers and Directors are certain—the expansion of the last three years has not injured the Institute within or without. It has been of the greatest benefit. And if continued progress is to be sustained in making the architect just as influential in national and community life, just as much of a necessity as is the doctor or the lawyer, then the national society of the architects must be stronger numerically.

Every Chapter has a Committee on Institute Membership. The Chairmen and Acting Chairmen are listed below. The Chairman in your Chapter, or the Secretary's office at the Octagon House, would be only too glad to receive from you the name of some unaffiliated architect whom you believe to be worthy of consideration for Institute membership. The Chapter Committeemen are:

Alabama, Eugene H. Knight; Arkansas, Lawson Delony; Baltimore, Henry S. T. White; Boston, Edwin S. Dodge; Brooklyn, Edwin S. Coy; Buffalo, Edward B. Green, Jr.; Central Illinois, F. N. Emer-

son, CENTRAL NEW YORK, Alfred T. Taylor; CHICAGO, J. C. Bollenbacher; CINCINNATI, Walter L. Rapp; CLEVELAND, H. L. Shupe; COLORADO, Robert K. Fuller; COLUMBUS, Orlando C. Miller; CONNECTICUT, Edward B. Caldwell, Jr.; DAYTON, Harry Schenck; ERIE, Armin Schotte; FLORIDA, Mellen C. Creeley; GEORGIA, F. D. Burge; INDIANA, Fermor S. Cannon; IOWA, W. J. Brown; KANSAS CITY, Arthur D. James; KANSAS, W. E. Glover; KENTUCKY, Hermann Wischmeyer; LOUISIANA, Solis Seiferth; MICHIGAN, J. H. G. Steffens; MINNESOTA, William W. Tyrie; MONTANA, C. S. Haire; NEBRASKA, Edwin B. Clarke; NEW JERSEY, Ernest H. Fougner; NEW YORK, J. Edgar Willing; NORTH CAROLINA, Willard G. Northrup; OREGON, Charles D. James; PHILADELPHIA, John S. Schwacke; PITTSBURGH, Richard Hooker; RHODE ISLAND, John Hutchins Cady; SAN FRANCISCO, J. S. Fairweather; SCRANTON-WILKES-BARRE, W. S. Lowndes; SOUTH CAROLINA, J. F. Collins; SOUTH GEORGIA, Arthur F. Comer; SOUTHERN CALIFORNIA, Charles S. Plummer; SOUTHERN PENNSYLVANIA, Miller I. Kast; ST. LOUIS, J. C. Stephens; ST. PAUL, Edwin H. Lundie; TENNESSEE, C. K. Colley; TEXAS, H. A. Overbeck; TOLEDO, Charles A. Langdon; UTAH, Georgius Y. Cannon; VIRGINIA, Philip N. Stern; WASHINGTON, D. C., Albert L. Harris; WASHINGTON STATE, A. F. Menke; WEST VIRGINIA, L. G. Tucker, and WISCONSIN, Henry J. Rotier.

Now, in conclusion, may I suggest the New Year's resolution that I spoke of at the beginning of the Page:

"I hereby resolve to think over all the names of architects I know who are not members of the Institute, and if in my opinion they should be members to do all I can to persuade them to become members of the American Institute of Architects."

Fellowships

"Art. II, Sec. 1. *General Conditions of Fellowship.*

Fellowship in the American Institute of Architects is conferred upon a member who is a citizen of the United States who, in the opinion of an authorized Jury of Fellows, shall have notably contributed to the advancement of the Profession in design, construction, literature, education or public service.

The above Jury shall be composed of six Fellows appointed by the President, who shall make six appointments for the first year with varying terms, and two appointments each succeeding year.

The name of each candidate selected by the Jury, after having been submitted to the members of the Chapter of which he is a member, and to all Members and Fellows of the Institute, shall be submitted to the Convention following the nomination, for election, as provided in Section 2 of this Article.

The Jury shall formulate rules for its procedure subject to the approval of the Board.

Section 2. *Mode of Election.*

Fellows shall be elected at the Annual Convention by Australian ballot from a printed list submitted by the above jury. The polls shall be open for receiving ballots under such rules as the Board of Directors may prescribe. The names of all candidates for election who do not receive five or more negative votes shall be read to the Convention and declared to be duly elected as Fellows of the American Institute of Architects.

Rejected candidates are not eligible for election at the next Annual Convention.

Section 3. *Nomenclature.*

Fellowship in the Institute shall be designated by the initials 'F.A.I.A.'

The Jury of Fellows for the current year wishes to call the above text to the attention of the Institute and to request the cooperation of Institute members in carrying out the duties of the Jury. Fellowship is an honorary distinction, conferred upon a selected group and will not be offered except upon the mature judgment of the Jury, based upon the best information which can be obtained. It is hardly possible that absolutely equal standards should be attained by every nominee, or that with the limitations of human knowledge, every man worthy of Fellowship should be sufficiently well known to the Jury to secure recognition.

The Jury will, so far as lies within its power, pass impartially upon all suggestions it receives and will nominate from time to time candidates for the approval of the Institute. It solicits suggestions and asks that they be sent to the Octagon, marked "For the attention of the Jury," and it will appreciate full and free expressions of opinion from the membership of the Institute in any of the methods noted above. HENRY H. KENDALL.

Chairman, Jury of Fellows.

Industrial Relations

Probably not more than 10 per cent of the members of the Institute are aware of the fact that the very promising movement for apprenticeship training in the building industry which seems to be starting up all over the country is really the result of an impulse given by the Institute. Four years ago the movement was started at a conference in Atlantic City at which representatives of the Institute's "Post War Committee" and delegates from the Contractors' Associations and Federation of Labor met to consider ways and means whereby some start could be made in this and other directions.

In last month's JOURNAL we reported the result of a conference held in Washington under the Bureau of Vocational Training at which the essential parts of the programme adopted were points made by members of the Institute. We refer particularly to the clause which states that at the very outset of any plan for apprenticeship training in the building industry the plan must have the backing of a group not only representative of the employers and employees, but also of the architects and engineers, the local educational systems and the other elements interested in the building industry.

At a preliminary meeting of the National Association for Vocational Education, held in New York on 3 December, the Chairman of the Institute's Committee on Industrial Relations presented to the members of this Association the outline of the plan under which the vari-

ous Congress Groups were organized in the different cities and the essential points in the scheme of apprenticeship training already under way in Boston, New York and elsewhere. Those present at the meeting were mainly educators, and it was exceedingly gratifying to find that the scheme received their enthusiastic support. It appears that at meetings of the Association held in Buffalo later in the week the whole subject was gone over in detail, the actual system being explained by Mr. Moran of the New York Apprenticeship Commission. According to the newspaper reports, the members of the Association seem to have been much impressed by the progress made and to have recognized the fundamental principle of this cooperative effort in which the architects have taken so leading a part.

According to the latest reports, a Congress Group, the formation of which is now under way in St. Louis, was formally organized at a meeting held there on Tuesday, 11 December. Mr. George F. A. Brueggeman, a member of the Institute, accepted the permanent Presidency of the Congress. We hope that next month's JOURNAL will be able to report this meeting in full.

ROBERT D. KOHN,
Chairman Committee on Industrial Relations.

Public Buildings

According to report it is now believed that no Omnibus Public Buildings Bill will be presented at the present Congress. It is announced that the program of the administration for a budgeted annual expenditure of five millions in the city of Washington will likely be acceptable to Congress and that in lieu of a definite program for the Federal public building necessities of the country as a whole, the most pressing of these will be taken care of by an arrangement in which the views of the various Department Secretaries will prevail. The outcome may be regarded as a slight step forward. But it still leaves the question in a far from settled condition. Murmurs are already being heard from cities where postal facilities are and have long been deplorable and it is a rather pathetic commentary upon our party system of politics when campaign issues are allowed to obscure genuine necessities. There is clamor for reduction of taxation, but true reductions will be found in a public building program based upon a suppression of operating costs and an improvement in service, rather than upon that visible and often illusory reduction in the amount collected directly by the Treasury Department. Taxation is not always what it seems in these matters, and the country is already heavily taxed by an archaic public building policy.

MILTON B. MEDARY, JR.,
Chairman, Committee on Public Buildings.

The Octagon House

The Building Committee has invested the generous gift of the Los Angeles architects and the furniture for the drawing room has arrived at the Octagon. The room is being renovated and the furniture and hangings will shortly be placed to give the room the aspect which it might have had in the year 1800.

D. E. WAID,
Chairman, Committee on Building.

Public Information

The Committee on Fire Prevention of the New York Chapter has made a very careful study of Fire Prevention in New York State. As a result of this six short letters written in words of one syllable were issued and distributed throughout the smaller towns surrounding New York City. The letters were in serial form so that each might be digested separately. The Chairman of the Committee, Mr. William O. Ludlow, has suggested that other Chapters might find the procedure useful and has furnished copies of the letters for publication. A letter addressed to him at 101 Park Avenue, New York City, will receive immediate response should any further information be desired.

In his communication covering the letters Mr. Ludlow says:

"I might add that I have been considerably interested in this matter of fire prevention, first because I believe that every architect should take more interest in it than he does. I believe that a good deal of the huge loss every year is directly attributive to the fact that architects as a class have not sufficient interest in the subject, or allow themselves to be dominated by the man who holds the pocketbook.

"In the second place I believe that the architects will stand much better in the estimation of the public if in a public way they show that they are concerned not only in æsthetics and commissions but in public welfare as well."

ABOUT ten Chapters are publishing the articles issued by the Public Information Committee and the Committee wishes to extend its hearty thanks to the Chairmen of the local Chapters for what they have done in furthering this activity. Some of the important newspapers are paying for the articles. In other cases the Chapters are paying the cost and in one or two cases where it seemed impossible for the Chapters to raise the funds the Institute is contributing the articles. In a few localities the local Chapter Committees have made serious efforts to induce the newspapers to publish the articles but have been unsuccessful because the newspapers consider the matter advertising and so definitely do they believe that newspapers are purely money-making enterprises and have no responsibility toward educating the public that they will not publish any matter that might indirectly profit an organization like the Institute or a profession like architecture without being paid for it. From a regrettably large portion of Chapters the Public Information Committee received no answers to its communications about these articles. It is hardly fair to appoint a Committee and ask it to do certain work without furnishing the necessary cooperation toward the execution of that work.

AN ORGANIZATION to put through a City Hall is being worked out by the Columbus Chapter which wishes to

enlarge this project by the development of a Civic Center, of which the City Hall would be the main point. A Central High School, New Post Office, a new Union Station, the New Masonic Temple and several other public and semi-public buildings with a considerable amount of park area are included in the scheme. A City Plan Commission has been constituted, a zoning ordinance has been enacted and a boulevard system project begun. A syndicate of architects is being formed through the Chapter, whereby the interest and ability of all the architects of the city may be obtained. We hope later on to be able to publish some information about the syndicate with the details of its formation and to say how it is working.

THE Indiana Chapter has been co-operating with contractors, building material men and labor representatives in arranging district meetings of men interested in the building industry. Meetings are held and topics of interest to all of the element represented discussed. A State Building Law is in process of codification and in this the Chapter is taking an active interest.

IN THE field of Public Information, the Washington, D. C., Chapter has been very active. First they have induced the Art Editor of the Washington *Post* to visit Chapter members and publish each week on the Art Page of the Sunday *Post* a brief interview with one of the members visited. The same editor also edits the Washington *Herald* and in that capacity has asked permission to run a full page on the local Chapter, its members and its work. The Washington *Post* has just inaugurated a special section which appears every Monday morning and is entitled "The Home Beautiful." After having had the matter brought to his attention, the editor has invited Mr. Harry F. Cunningham, Chairman of the Chapter's Public Information Committee, to contribute a weekly column on the architect's part in "The Home Beautiful." A Speaker's Bureau also has been inaugurated by the Chapter and as many organizations that have asked for speakers in the past have resumed their regular meetings; it is expected that this Bureau will begin to function shortly.

JOHN V. VAN PELT, *Chairman,*
126 *East 59th Street,*
New York City.

New Members Elected

As of 17 November, 1923

Harry M. Price, Stanley Matthews, *Cincinnati,* CINCINNATI; Montana S. Fallis, *Denver,* COLORADO; Peter M. Hulsken, *Lima, O.,* DAYTON; Clarence Wentworth Irwin, *Waterloo*; Carrol A. Klein, *Davenport,* IOWA; Claude H. Lindsley, *Jackson, Miss.,* LOUISIANA; Henry H. Turner, *Grand Rapids,* MICHIGAN; Albert H. Dyer, *Fremont,* NEBRASKA; Hall Crews, *Winston-Salem,* NORTH CAROLINA; James J. Baldwin, Joseph Huntley Casey, Charles William Fant, *Anderson,* SOUTH CAROLINA; William J. Hanker, William G. Lester, Edwin Brewster Phillips, Raymond Briggs Spencer, *Memphis,* TENNESSEE; John W. Kearney, WASHINGTON, D. C.; Ernest T. Mock, *Tacoma*; Earl W. Morrison, Vas S. Stimson, *Spokane,* WASHINGTON STATE.

Announcements

THE Fifty-Seventh Annual Convention will be held in Washington, 21, 22, 23 May, 1924.

MR. HERBERT B. BRIGGS of Cleveland has been appointed State Architect for Ohio.

AN INDEX for Volume XI of the JOURNAL has been printed and will be mailed to all subscribers of record on request.

The Ohio Board of Building Standards

The Ohio Board of Building Standards, created by House Bill No. 539, enacted 6 April, 1923, and found in Ohio Laws 110, was organized 23 October, 1923. It has a membership of seven, two of whom are state officials and five are by appointment of Governor A. V. Donahey. The members and officers are: Herbert B. Briggs, architect, Cleveland, chairman; Thomas P. Kearns, Chief of the Division of Workshops, Factories and Public Buildings of the State Department of Industrial Relations, secretary; William H. Dittoe, Chief Sanitary Engineer of the State Department of Health; Peter E. Dempsey, attorney-at-law, Columbus; John H. Clemmer, general contractor, Akron; Edward J. Cavan, electrical engineer, Cleveland; William C. Groeniger, sanitary engineer, Columbus.

House Bill No. 539, prepared by and enacted through the efforts of the Ohio State Association of Architects, broadly speaking provides: For the revision of the Ohio State Building Code and other State laws regulating buildings and the sanitation and equipment thereof; for making uniform existing lawful requirements imposed by various departments under the police power of the State; for the writing of legislation to regulate the construction of buildings not regulated by the state code or by lawful requirements; for the supervisory centralization of building regulation in one State activity; for the making of building regulation *reasonable* in its imposed requirements; and, particularly, for the lawful machinery through which *building regulation may be kept abreast of building progress and practice* without recourse to slow and uncertain legislative action.

The Ohio State Building Code, in effect since 1912, was enacted following—and largely as a result of—the Iroquois theater and the Collinwood school fires. It contains many of the nation-wide drastic provisions that were written into codes following those fires. It regulates the construction of theaters, assembly halls and school buildings only, the sanitation of all buildings except dwelling houses, sets up partial standards for the construction and equipment for certain kinds of buildings and provides for administration, except for the sanitation part, by the Division of Workshops, Factories and Public Buildings in the Department of Industrial Relations. The sanitation part—State Plumbing Code—is administered through

the Department of Health. Fire prevention and fire regulation, including electrical inspection, are vested in the Division of Fire Marshal, in the Department of Commerce. Ohio has no electrical code.

The Ohio code has not been changed or amended in any essential particular since it became a law, twelve years ago. Efforts to amend it and to enact a complete up-to-date code have met the usual fate of technical legislation submitted to non-technical deliberative bodies. The Ohio Supreme Court recently held that the division administering the code has no power to determine equivalents for nor to modify or change any of its requirements, regardless of how archaic they may be, a power supposedly conferred by the law under certain protective provisions. The somewhat uncoordinated administrative provisions have tended toward confusion and inconvenience on the part of those engaged in the construction of buildings.

The Board of Building Standards law is not a detailed building code. It defines the principles of and is a basic building code. It provides for the prompt determination of present and future code requirements by the Board itself. Its defined purpose is that all public buildings used or that may be used for resort, assembly, education, entertainment, lodging, trade, manufacture or repair, storage, traffic or occupancy by the public, and all other buildings, except single and two-family dwellings, within the corporate limits of a municipality or on allotted territory within three miles thereof *"shall be so constructed, erected, equipped and maintained that they shall be safe and sanitary, for their intended use and occupancy."* It defines a building to be "any structure consisting of foundations, walls, columns, girders, beams, floors and roof, or a combination of any number of these parts, with or without other parts or appurtenances." It defines the words "safe" and "sanitary" and makes sanitary cover and include "lighting, heating, ventilating or plumbing."

The Board is established in the Department of Industrial Relations. It is mandatorially authorized and instructed to "formulate and report to the General Assembly" amendments to existing building construction and equipment laws and additional legislation "to carry out fully" the purposes of the act creating it; including the coordination of all regulatory functions of the State; and, on petition of any party at interest, *to determine and establish equivalents for required, or to be required, fixtures, devices, materials, systems or manners of construction or installation,* or to refuse to grant such petition. It is *directed* to recommend and promote state-wide uniformity in building law and ordinance regulation requirements.

The constitutional and statutory powers of other State functions and of municipalities are not limited by the law, but such functions and municipalities shall not enact legislation in conflict with it.

The law provides that contracts for buildings shall not be entered into unless the drawings and specifications therefor shall have been approved by an authorized municipal commissioner of buildings or by the Chief of the State Division administering the code. Any building constructed, equipped, altered or repaired not in accordance with the laws of Ohio and with the determinations of the Board, shall be deemed a nuisance.

The new Board, on organization, declared its purpose to be "to establish standards to make buildings safe and sanitary with due regard to construction cost economies; to base its determinations of equivalents solely in the interest of the public; and to provide a system through which interested activities, organizations and individuals may be kept informed of its work, actions and determinations."

HERBERT B. BRIGGS.

Errata

Due to an unobserved typographical error the location of the old antique shop in Mr. Chamberlain's drawing of Paris was printed as Boulevard Raspart, whereas it should have been Boulevard Raspail.

Restoration of the Fine Arts Building, Chicago

Readers of the JOURNAL have been able to follow the untiring effort of Mr. George W. Maher and his Special Committee of the Chicago Chapter toward securing the restoration of the Fine Arts Building in Jackson Park. Fortunately they have been loyally supported by the leading organizations of their city and by the public press, and we are glad to be able to record that the South Park Commissioners have appropriated $500,000 for the work and ordered that preparations be made for plans and the taking of bids. The money available is not sufficient to complete the whole work but there seems no reason to doubt the ultimate complete restoration of the building.

Architecture, Vellum and Parchment

The Bodleian

As I sit, I look, surely, on the most learned looking lot of worthy readers in Christendom. I can see one whose ivory face in its black skull-cap might well have been the original of that Ghirlandajo portrait we all know; another, who sits habitually in the same stall with fifteen huge tomes before him, dozing, with a large white bath-towel draped over his head; another still, who, as I live, wears three pairs of spectacles at once—surely the greatest living number ever assembled at one and the same time upon any single nose!

The Oxford undergrad is conspicuous here by his absence, the Radcliffe just opposite holding all, or nearly all he may require, but the "unco' learned" abound and there is that in the very fragrance of the room, a subtle blend of vellum and old wood, of ink and leather, that intrigues the near-wise to come and join the ranks of the elect.

Suppose then, we mount the worn old wooden stairs,

OXFORD—DIVINITY SCHOOL, 1480

armed with our reader's permits, and push open the simple green baize door. We are in the Arts End, a narrow 1613 addition to the original library, built over the Divinity school in 1420. Down the centre run glass-topped cases displaying some of the treasures of the collection; illuminated Acts of the Apostles and Hour Books belonging to Kings, Queens and Saints of old; richly jeweled and bound missals and fragments of ancient papyrus and vellum, almost undecipherable with the weight of their years. One, a beautiful old volume of the Acts, once the property of the Venerable Bede himself, who died in 735! Another, a Latin copy of the Gospels, being one of two given by Pope Gregory to Saint Augustine and proven to have been the very book in which the Gospels first entered England. Then there is the mammoth Vernon MS., almost too heavy for one man to lift, and the smallest one, a fascinating wee thing, ¾ x ⅝ x 3/16 inches, the subject being a sermon in a kind of shorthand, written in 1654 by a divine who boasted that he "could write so small that none might see his pen move."

Perhaps the most human of all the ancient documents is a Greek fragment of Papyrus dug up at Oxyrynchus, 120 miles south of Cairo, and written in the second or third century by a Greek schoolboy: "Theon to his Father, greeting," it says. "It was a fine thing of you not to take me with you to town. . . . Mother said to Archelaus, 'He upsets me, take him away!' So send for me, I implore you. If you won't send, I won't eat, I won't drink. There now." The first recorded hunger strike!

Above the book cases hang portraits of the Founder and a solemn line of Librarians, but at the end of this passage the most lovely part lies before us—Duke Humphrey's or the Old Reading Room, opened in 1480 and not materially changed since, except that in 1602 Bodley put in the beautiful ceiling that is still one of the wonders of Oxford. On every other corner of the block oak panels is painted the escutcheon of Sir Thomas Bodley, with his curious scroll, *"Quarta perenius erit"* (and the Bodleian being the fourth library of the University has led them to adopt this as its device). And in every panel rest the still more beautiful University arms, with its incomparable motto, *"Deus illuminato mea."*

On each side of the passage down the center of this room are the alcoves, ten on each side, where, at broad old oak desks, the readers browse. Time was when these same desks were marked and marred by the chains with which each book was bound; now, however, all is fair and free, and in the open shelves at one's fingers' ends rest treasures such as give a bibliophile great content. At the time when Duke Humphrey gave his princely donation of 600 volumes (and in 1480 that *was* princely) this room was amply large. Gradually more books were acquired, so that in all there were two chests full, and these were lent out from time to time to needy scholars—England's first Public Library! Later—in 1320—Thomas Cobham, Bishop of Worcester, began the room over the north of the chancel of Saint Mary's for the better housing of the books which bade fair to outgrow the limits of the two poor chests in which the little stock had rested.

But with affluence came acrimony, and between the University and Oriel College there flourished so truculent a dispute as to ownership, that all Library schemes were held up until 1410, when, an amicable understanding having been painfully arrived at, books began to flow in so fast—probably as many as eighteen or twenty a year—that the available space was outgrown. Then it was that Duke Humphrey of Gloucester stepped in with his proposition that the space over the Divinity Schools be used. In all probability, the 600 books of his foundation included those brought over from Saint Mary's, since Mr. Madan, the lately retired librarian, says his gift

was only 281 volumes, so it would seem that the rest was the accumulation of 263 years!

And now for half a century or more, we may imagine the Oxford undergraduate feasting in peace and quiet for the betterment of soul and mind, that is, when he was not otherwise occupied in hunting the wild boar, or the nearly as wild "townie" on the High Street with his bow and arrow. It is well known that his little pranks in the line of murder became so annoying that at last he was severely spoken to, and to this day upon matriculation, must subscribe to the University rule that he cannot roll hoops nor carry bows and arrows upon the High Street, nor play marbles upon the steps of the Bodleian.

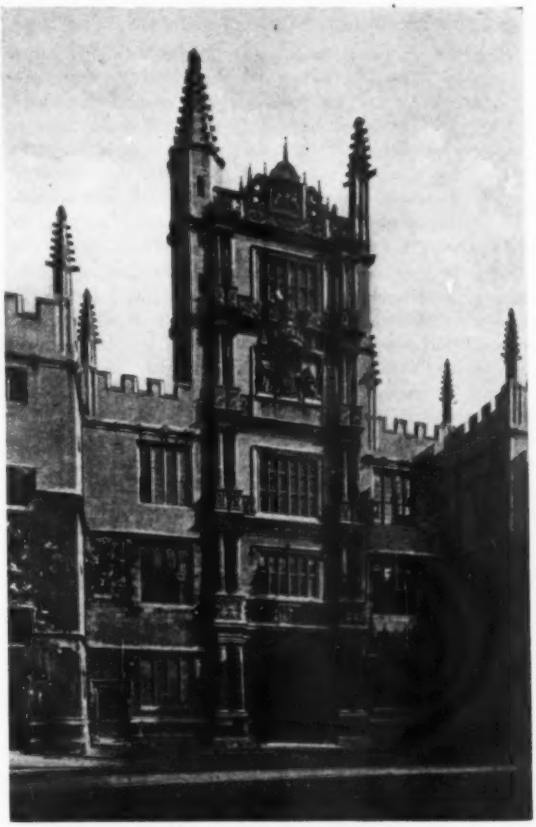
In 1550 came Edward the Sixth's Commissioners, whose ideas of reform led them to lay waste the whole place, only a very few volumes being spared, four of which the Bodleian still has, with as many more in the British Museum and University of Paris. Any book which was found to contain pictures of Saints was publicly burned, while the "less noxious things" were simply sold for waste paper. And so from then until 1598, "dead silence, bare walls, no books, no voice nor any that answered."

It must have been a dreary time in Oxford, when the old schools and the quad were used by the laundresses of the town as a drying yard and it was perhaps the very sight of this lamentable display where once had been such erudition that moved the pity of "a certain worthy of Devon" named Thomas Bodley, then an independent member at Magdalen. Artistic, tactful—"well born, well read, well traveled, well bred"—this young man, at 19 a Fellow of Merton, started out upon the life of a courtier and diplomat, and then, having easily acquired both fame and fortune, "concluded," to use his own words, "to set up my staff at ye librarie door in Oxon," having, as he deemed, the four kinds of aid necessary for success in founding and carrying on the Library:

"1st. Knowledge of tongues and literature.
2nd. Purse ability.
3rd. Great store of honourable friends.
4th. Special good leisure to follow such a work."

Accordingly, in 1598, he sought and gained glad permission to undertake the restoration of Duke Humphrey's room, which, with its later additions, was hereafter called the Bodleian, after the fourth benefactor and founder, and on 8 November, 1602, it was opened with much pomp and display of its two thousand odd books—in that day no mean number, even for the "spacious times of great Elizabeth," and we may imagine how the eyes of the students of the day bulged when they saw the first "stall system" in England, all others up to that time having been of course "lectern"; in fact, Thomas James, the first Librarian, becomes ponderous in his praise of the "English Vatican," and describes it as "the true Ptolomee of our times," "the like nowhere to be found"—"open six hours daily!"—"books in thirty foreign languages" (Latin was, of course, not a "foreign language").

A masterstroke of Bodley's (then Sir Thomas) was the agreement with the Stationer's Company by which the Bodleian was to have, without payment, one copy of everything published within the realm. When one



OXFORD—SCHOOLS TOWER OF FIVE ORDERS

looks about one at some of the things in the bookshops purporting to call themselves by that honourable name—BOOK—one cannot help thinking that there may be those among the present library staff who are sometimes tempted to breathe a gentle curse upon Sir Thomas and his all-embracing cleverness. At any rate, this scheme and the growing popularity of the library, as well as that of its delightful sponsor, who lost no chance of acquiring, by assiduous cultivation of benevolent-minded persons, any literature which might be offered (and even gave his librarian definite instructions to follow up all such offers with as much haste as was compatible with good breeding) resulted in his library being for hundreds of years the first and foremost in the United Kingdom. In fact, such a hobby did it become with its fond founder that in 1611 we find Thomas More writing in a letter to a friend:

"Bodley, the other day, notwithstanding his many sums of money now due, was fain to borrow upon bond, and after that to pawn and sell his plate to finish his last building of the Library, the which doth cost him in all twelve hundred pounds!"

On 28 January, 1613, Sir Thomas Bodley died, leaving directions for a big funeral celebration when 100 pounds was to be spent on the dinner, and 68 gowns, one for every

year of his life, were to be presented to each of so many poor students.

For 150 years after the Civil War immense donations were attracted to the Bodleian, one vast collection of MSS. indeed being so huge that the staff seem to have been so overwhelmed that it was nearly a hundred years before they were all catalogued and order was restored out of the chaos occasioned by this princely inundation. The catalogue of printed books is now comprehended in 726 huge folios, a vast work that grows ceaselessly.

In 1753 the British Museum was founded, but the Bodleian still held her proud place as premier library in the United Kingdom. Perhaps it was because her staff grew a bit lazy that by 1850 her rival had outstripped her. At any rate, in 1828 we find one story of a "savant inconnu," who, arriving at the door only to find it locked, although it was well past opening time, left pinned to the door this aptest of quotations in Greek:

"Ye have taken away the key of knowledge; ye neither enter in yourselves and them that would enter in, ye hinder."

Surely she is still a hero among libraries, well deserving her proud place as first among all the University libraries of the world, second among libraries of deposit in the English speaking world. According to Mr. Madan's figures (1919) the British Museum had 3,750,000 printed volumes, 60,000 MSS. The Congressional Library at Washington, (1915) 2,364,000—eighty miles of occupied shelves, more than double the shelvage of the British Museum, but not as many MSS. nor precious old books. New York he lists at 1,920,000 and Boston 1,050,000, whereas the Bodleian claims, of printed volumes exactly the same number—1,050,000; of separate pamphlets, 2,060,000; of MSS., 40,000; and of deeds and charters, 20,000. The total number of books of different titles (that is, of separate works) in the world he estimates at 12 millions, so it is not unfair that with such a percentage the Bodleian should claim eighth place in size and importance in the world.

The shadows have begun to lengthen as I write. The old man in the bath towel is stirring—turning a leaf before which he has been dozing this last hour; the Ghirlandajo portrait is packing his fine Greek notes in the little reticule he always carries; the three-spectacled individual is peering into his tome, looking as though he were longing for yet a fourth pair, if only his nose were long enough to accommodate them all.

A sudden clamour tears wide the soft quiet of the room—the monstrous clang of a great bell! I leap in consternation from my chair. Then I remember. No artificial light has ever been installed, so when the light begins to fail the Library simply closes, and this peal that so startled me is only Sir Thomas Bodley, his bell, announcing:

"Gentles all, we wish ye a very good day!"

FLORENCE S. CAMPBELL.

THE AUTOBIOGRAPHY OF AN IDEA and THE PORTFOLIO OF DRAWINGS by Louis H. Sullivan have been slightly delayed in the press but will be issued very shortly.

From Our Book Shelf

Reforming

Mr. Arthur J. Penty is an English architect who finds time to do a bit of thinking. He possesses a gift of clear statement, and a pleasant manner that establishes between author and reader relations of friendly equality. He impresses as eager to share, though not to impose, his views; does not irritate by over-combativeness, and proposes his solution of the more fundamental social and economic problems with evidence of real optimism.

His book[1] will be received with scant favor by those who affect that Polyanna philosophy which accepts as divinely ordained, or inherent in the nature of things, practically any evil, especially when "the other fellow" is the victim. Prosperous persons are disposed to brush aside any criticism of the existing order as merely querulous complaining of minds out of touch with reality, or natural reaction to self-admitted failure. Mr. Penty has no "crumbs of comfort" for such minds, nor for the merely disgruntled and cynical.

"Towards a Christian Sociology" is a book for enthusiastic youth. Young men and women whose outlook on life is clear and direct will read it and be inspired by it. It is not a preachment, nor of that type of militant advocacy of a cause which is offensive to sensitive minds. It is frankly an attempt to apply Christian philosophy to modern conditions and the philosophy is drawn more from mediæval than modern sources. In the opening chapter Socialism and Christianity are compared, the Christian form being taken as looking toward the permanent needs of human nature, while the Socialist considers all human needs, apart from the elementary food, clothing and shelter, "as non-essentials, subject to change and flux."

"It takes its stand on the supposed truth of a theory of social evolution according to which all social phenomena are to be regarded as relative, and human nature capable of infinite adaptation to changing circumstances. Its policy is therefore not directed towards a return to the normal, but towards the stabilization of the abnormal. All thought on social questions moves between these opposed conceptions, which have their roots finally in the teachings of Christ and of Marx, and the reason why there is so much confusion of thought on social questions is that most people, whether they be Socialists, Labourists, or Christians, fail to discriminate between the categories, vainly imagining they can compromise between the two."

He takes the Church to task for the divorce which has taken place in men's minds between things of the spirit and material affairs, apparently minimizing the fact that, rightly or wrongly, this well-nigh world-wide divorce was effected by the deliberate choice of men who had lost faith in the Church as qualified for dealing with worldly matters. He goes farther back than the Protestant Reformation and blames St. Augustine for sowing the seed that has borne fruit in modern times in the dualistic idea that has not only separated Church from State but religion from business.

Mr. Penty marshals some very interesting arguments

[1] "Towards a Christian Sociology," by Arthur J. Penty.

for a return to some form of the mediæval guild idea, and it is here that he is at his best. The reader of "drum and trumpet" history will gain by the study of these pages a new viewpoint as to the much misunderstood "middle ages." A fascinating picture is presented of the social and economic life in the days that produced the Song of Roland, the "Summa" of Thomas Aquinas, and the great Cathedrals.

The problems of currency and the financial troubles which beset the nations, half of whom are unable to trade advantageously with the other half, are discussed with courage and frankness.

It would not be fair to Mr. Penty to attempt to give an abridgment of his statement of both problem and solution. That he offers a solution is noteworthy, for most of our economists are content with merely analyses of existing conditions and the underlying theory, leaving synthesis entirely to the mind of the reader.

In his chapter on "The Just and Fixed Price," Mr. Penty acknowledges indebtedness to Mr. Henry A. Wallace of *Wallace's Farmer,* an indication, surely, of more than ordinary reading and research. It is quite unusual for London to quote Des Moines.

Of special interest to architects are the chapters on "The Quantitative Standard" and "Machinery and the Subdivision of Labor." Among the authorities cited is Mr. Ralph Adams Cram, from whose book, "Towards the Great Peace," is taken a striking quotation. Mr. Penty is indebted also to Professor Lethaby, whose "Form in Civilization" has been reviewed in these columns.

With such an interesting book before him it is a temptation to the reviewer to become prolix and to tell too much of the author's story. He must needs remind himself that a review should merely hint at what may be the reader's pleasure. Unfortunately, appreciative seekers after truth are sometimes repelled by the professional "blurb." In the case of "Towards a Christian Sociology" let it be sufficient that, in the opinion of him who writes, to read the book with an open mind will help "to enter sympathetically into the great heritage of the past" and also "to face realistically the problems of the present."

WILLIAM L. STEELE.

More Composition

The title "Architectural Composition" [1] might naturally lead one to expect to find expounded something of the basic principles of design—perhaps the genesis of composition, proportion, taste—things that the architect has drawn in with the milk of academic training and which he has felt could undoubtedly be traced back to their primal causes.

Why is the division of base, shaft and cap particularly pleasing? Is it the analogue of nature's column, the tree? A very pretty treatise I'm sure could be made on the matter of symmetry and assymmetry, on the value of plan and its over-estimation as an architectural essential. Why does the inchoate plan of the Palace of the Doges produce a façade of scintillating beauty, while the greatest plan in the world is expressed by the dull and dingy exterior of St. Sophia? What of form and its expression of function? What of the revolution one should expect in composition when the last half century has seen structure become largely an organism of metallic tension, a body like a vertebrate with a skeleton and a skin? After 10,000 years of troglodyte compression, we are watching architecture stand up and reach its arms to the sky. But M. Varon has not told us anything about it. He has been content to point out obvious beauties by an analysis of the famous work of architecture drawn chiefly from the storehouse of the Renaissance. Nor are these examples sufficiently interesting or unusual, nor are these analyses erudite enough to give to the practised architect or amateur anything of which he was not previously aware; and while we are on the debit side of the ledger it cannot be said that the style is distinguished or that the small drawings which illustrate the book are, in execution or accuracy, what one should expect in a book on architecture by an architect.

These limitations will reduce the theatre of its reception to the classroom which is unfortunate as the title and the chosen chapter headings should have resulted in a book with a wider sphere of usefulness. The subjects of the different chapters which seem excellent and comprehensive to me are (largely in my own words) as follows: 1. The simplest forms of Plan elements. 2. Elementary Classic plans. 3. Plan elements, in famous compositions. 4. Semi-complex design. 5. Complex design. 6. Units of architectural compositions. 7. Rhythm. 8. Scale. 9. Expression. 10. Harmony. 11. Analysis of a plan in the relation to the foregoing.

A splendid program which perhaps M. Varon can elaborate, some day, in a more careful and distinguished fashion.

T. E. T.

[1] "Architectural Composition," by D. Varon.

The Romance of the Alphabet

Little things like the familiar letters of the alphabet, the very ones that are on this page, have a history, have parents, grandparents and great grandparents, and alas, some of them, a past! Originally adapted from pictures used in picture writing, they have, through a process of evolution, or, rather, as Mr. Goudy says, "degradation descended to mere arbitrary forms with little resemblance to their ancestors."

It is fascinating to learn, for instance, that "k" was once written ⋊ and also "IC"; that "I" now the simplest of our letters was once quite complex in the form of an angular "S" and later in the form of the Greek Sigma; that "P" was originally merely an inverted "L," the short horizontal stroke being curved inward gradually more and more so as to result in the present form. So Mr. Goudy tells a little story about each letter, in his book, "The Alphabet." [1] There are forty-odd pages of delightful, scholarly text, but the glory of the book is in the twenty-seven full-page plates, one to a character and each one containing fifteen beautifully drawn examples of the character illustrated and a historical note. It is difficult to describe the sheer beauty of these plates. It is quite as difficult to describe the satisfying beauty of the whole book.

[1] "The Alphabet" and "The Elements of Lettering"—Two books by Freder. W. Goudy.

Less inspiring and almost commonplace by comparison is the companion volume by Mr. Goudy, "The Elements of Lettering," although similar in format to the first volume and equal to it in the quality of book making. The text is more meagre and less interesting and the plates are for the most part drawn from commercial types designed by Mr. Goudy. We feel that most if not all of the material of this volume should have been incorporated in "The Alphabet," where it would have come in natural and appropriate sequence.

Exquisite craftsmanship is the outstanding characteristic of these two books—craftsmanship such as was the glory of the time when to be a good craftsman was an honor among men. The pages of these books are concrete manifestations of Mr. Goudy's ideals in typography. The types used in the text were designed by Mr. Goudy and set by Mrs. Goudy. It is doubtful if in any other modern books can be found such a rare combination of good paper, beautiful type and setting, and excellent printing. The American Institute of Architects has seen fit to honor Mr. Goudy as one of the outstanding craftsmen of the day by bestowing upon him its gold medal for craftsmanship. Every member of the Institute should have in his library these two books, not so much for the purpose of copying letter forms from them, nor even for the purpose of studying them, but for the inspiration that may be had from two well-nigh perfect examples of a craft so intimately useful in his art.

BEN J. LUBSCHEZ.

Things Grecian

In these days when men are turning everywhere, away from the present, for the present offers such an inadequate compensation in terms of life that no one gets much enjoyment out of it and by one means or another seems to be bent upon escaping from it, the tide of illusion and the current of dreams and the shining gleam of vision find easily the voyagers who would go hither and yon, where life once seems to have been an efflorescence of expression and when the ills of it and the hardships of it were eclipsed and outweighed by a constant creative endeavor. The turn to Greece is one of the easiest ones to take. Greece has been celebrated these many centuries and her record is written in terms that can be read by the multitude. If we may not ourselves wander amid the scenes of a history and a lore that weave such spells of enchantment, then the camera may be a useful spur to put to dreams, although there are moments when we are ready to confess that nothing has so stifled the creative instinct of modern times as the possibilities for copying that have been evolved by the camera. Time was when men went to see things and to understand, by intimate contacts, the spirit behind them.

[1]Picturesque Greece is at least not devised so that one may copy from its pages. The details are lacking, happily, and one may ride with free rein among the imagined ecstacy of a people that knew how to create such a setting for their existence. I have turned the pages over and over and marvelled only at that. What was the secret? Where is it locked away? For along with the legends and the myths, and the wars and the feuds, and the slave and the freeman, something was riding high on the wave of a great and common heritage—an environment in which men must have moved on a vastly higher plane than that amid which we moderns are wont to go about our business and seek our pleasures. Picturesque Greece is a sort of epitome of the wonders of that secret which has been lost these many years. It is a fairy wand or a magic carpet by which we are transported, and what better book can one have? H. C. B.

[1] Picturesque Greece. 176 full page illustrations.

Obituary

JOHN BEVERLY ROBINSON

Elected to the Institute in 1901; to Fellowship in 1910
Died at St. Louis, Missouri, 11 November, 1923

Professor Robinson was born in New York City 10 June, 1853, and was the last living member of the fifth generation of descendants of Col. Beverly Robinson, who organized a regiment in the War of the Revolution. He was graduated from Columbia University in 1872 and was a member of the firm of Thayer & Robinson, New York City, 1882-97. During 1897-1910 he was deputy superintendent of Public School buildings in N. Y. City.

In 1899 he published "Principles of Architectural Compositions" and in 1908 there appeared "Architectural Composition." There followed in 1916 the "Economics of Liberty" and thereafter he was a frequent contributor to periodical literature, setting forth his fine human philosophy of human relations, the banishment of fear and force, and the setting up of an era of genuine fraternity.

He retired from the architectural school of Washington University, of which he had long been the head, in 1917 because of failing health. He is survived by his widow and by his daughter, Mrs. W. McKim Marriott, and two sons, Beverly and Devereux.

THEODORE C. LINK

Elected to the Institute as a Fellow in 1889
Died at Baton Rouge, Louisiana, 11 November, 1923

Mr. Link was born in Wimpfen, Germany, in 1850, and received his academic education at Heidelberg, London and Paris. In 1893 he joined with William B. Ittner and Fred Rosenheim in the firm of Link, Rosenheim & Ittner, and in 1896 he became a partner in the firm of Link & Trueblood. He was active in practice up to the time of his death, which found him engaged in the work of large buildings for the Louisiana State University and the State Agricultural College. He was the designer of the Union Station and the Washington University Medical Building, including Barnes Hospital, at St. Louis. He was a member of the commission of architects for the World's Exposition at St. Louis in 1904 and the designer of the Mississippi State Building and the Metallurgy Building. For three years following the war he was engaged in important work for the State of Mississippi in the designing of educational and benevolent buildings at Jackson. In addition to these more prominent structures his work covered an extensive range both in character and in territory. He is survived by his widow and by two sons, Clarence V. and Edwin C. Link.

Structural Service Department

LEROY E. KERN, *Technical Secretary*

In connection with the work of the Committee on Structural Service of the American Institute of Architects and in collaboration with other professional societies and organized bodies having the same objective—improvement in building materials and methods and better shelter for humanity in all its manifold vocations and avocations

Abstracts

It is the purpose of the Structural Service Committee and THE JOURNAL *jointly to give, in this division each month, brief abstracts of all publications by the Government Departments and Bureaus, University and other research laboratories, States and Associations, which contain fresh information in regard to materials or methods employed in construction and thus accord architects and others a convenient means of keeping themselves conversant with rapidly expanding knowledge in the technique of construction.*

Utilization of Blue-stained Lumber (19a)—(*Forest Products Laboratory, Technical Note No.* 184). While it has been established that blue stain in lumber is not an early stage of decay, but merely an indication of the presence in the sapwood of a fungus which does not materially affect the strength of the wood for ordinary commercial purposes, no absolutely effective method of preventing it other than kiln drying has been found. Kiln tests at the Forest Products Laboratory, of the Forest Service, have shown that a temperature of 140 degrees F. for a period of 6 hours is sufficient to kill the blue-stain fungus in the center of test pieces up to 4 by 4 inches square. No chemical dip for green lumber has been found which is remedial in periods of continued rain during the warm months. Until a suitable method of prevention is found applicable in cases where kiln drying is not feasible, intelligent utilization of the discolored stock will remain the only means of discounting the damage done by the blue-stain fungus when the methods now available have failed to keep it out. Resurfacing will not help when the fungus has made substantial penetration.

As blemish in any degree would destroy the beauty of the grain of the wood; bright stain-free stock is highly desirable for a large variety of uses requiring a natural finish. But for many purposes where the wood is to be covered up or painted and where the use of sapwood is permissible, there is no reason for discriminating against blue-stained material, provided no wood-destroying fungi are associated with the stain.

As the conditions which favor the development of stains in sapwood also offer the opportunity for infection with the wood-destroying fungi, the holder of such material should assure himself that no indications of these harmful fungi are present before recommending the use of badly blued stock.

Blue stain is freely accepted in rough lumber, lath, scantling, plank, and some of the larger sizes of dimension. More could well be used in the manufacture of sash doors, millwork, and other products when the discoloration is to be painted or otherwise hidden from view.

Greater confidence in decay-free blued stock can be built up if the dealer will make clear to the customer the fact that blue stain does not seriously affect the strength of wood, and will suggest specific uses. Efforts in this direction will be greatly reinforced when blue-stained lumber comes into wider use and justifies the dealer's claims.

Lighting of the Food Industries (31f13)—(*Edison Lamp Works. Bulletin L. D.* 143. *Size 6" x 9". Pages* 36. *Illustrated*).

Synopsis. Benefit of proper lighting. Grain elevators. Flour mills. Breakfast food manufactories. Bakeries. Canneries. Meat packing. Fish packing. Ice cream manufactories. Fruit packing. Milk treating plants.

Bibliography. "Packing House and Cold Storage Construction," Peter Herschien, published by Nickerson & Collins, Chicago, Ill.; "Improved Ltg. of Meat Packing Plants," F. H. Bernhard, *Elec. Review,* July 20, 1918; "Solving Special Ltg. Problems in the Western Cannery," Warren Alden, *Journal of Elec. Western Industry,* August 15, 1921; "Food Industries," Vulte and Vanderbilt, Chemical Pub. Co., Easton, Pa.; "Safety Provisions in Ltg. Grain Elevators," *Electrical World,* July 19, 1919, p. 133; "Illumination of Interior of Baker's Oven," *Electrical World,* June 20, 1914; "Safety Ltg. in a Candy Factory," *Safety Engineering,* Oct. 19, 1916; "Lighting for Dusty Places," by Chester L. Dows, E. B. Fox and W. T. Blackwell, *Electrical World,* Jan. 22, 1921; "Lamp Temperatures in Modern Ltg. Practice," by Chester L. Dows and Willard C. Brown, Trans. I.E.S., Vol. XVI, No. 7, Oct. 10, 1921; "Cocoa and Chocolate," by R. Whymper, published by J. A. Churchhill, 7 Great Marlborough St., London, England.

The Lighting of Wood-working Plants (31f13)—(*Edison Lamp Works. Bulletin L. D.* 142. *Size 6" x 9". Pages* 15. *Illustrated*).

Synopsis. Preliminary processes. Mill processes. Drying. Machine work. Bench work. Color work. Filling, varnishing, etc. Essential considerations. The foot candle meter.

Bibliography. "Industrial Illumination" (Lumber Mills), F. E. Murphy, *Journal of Electricity,* June 11, 1918; "Improved Lighting of Woodworking Plants," F. H. Bernhard, *Electrical Review,* Sept. 14, 1918; "Lighting the Factory Effectively," Lew Monous, *The Woodworker,* December, 1920; "Selecting Illumination for the Industrial Plant," J. J. McLaughlin, *Journal of Electricity,* July 15, 1921.

Ventilation (30d).—(*Ozone in Ventilation. Reprint No.* 591 *from the Public Health Reports of the United States Health Service.*) This seven-page 5¾" x 9" reprint contains short abstracts from the following literature on the use of ozone in ventilation:

Ozone for ventilation: Powell, S. T., *Metallurgical and Chemical Engineering,* vol. 13, pp. 975-977, 1915.

An experiment with ozone as an adjunct to artificial ventilation: Feldner, A. M., *Heating and Ventilating Magazine,* March, 1919, pp. 35-36.

The use of ozone for disinfection of air: Galli-Valerio, B., *Central-blat für Bakteriologie, Paraitenkunde und Infectionskrankheiten,* Abt. 1, vol. 75, pp. 93-96, 1914.

Ozone an aid to factory ventilation: Greene, V. D., *Engineering Magazine,* vol. 49, p. 517, 1915.

Reports discredit ozone as room disinfectant and deodorizer: Steinmetz, C. P., *Engineering Record,* vol. 68, pp. 645-646; *Journal of the American Medical Association,* September 27, 1913.

The bactericidal, deodorizing, and physiologic properties of ozone: Jordan, E. O., Carlson, A. J., and Sawyer, W. A., Editorial, *Journal of the American Medical Association*, September 27, 1913; *Engineering News*, vol. 70, pp. 1092, 1096-1098.

Ozone: Bushwell, A. M., *Journal of Industrial and Engineering Chemistry*, vol. 5, pp. 882-883. Editorial. *Idem.* Franklin, M. W., *Ibid.*, vol 6. pp. 82-83.

An experiment with ozone in school ventilation: Bass, Frederick, *American Journal of Public Health*, vol. 3, pp. 1135-1137; *cf. Chemical Abstracts*, vol. 7, p. 2637.

Ozone machines and public health: Franklin, M. W., *Electrical World*, vol. 63, p. 381; *cf. Chemical Abstracts*, vol. 8, p. 770.

The value of ozone in ventilation: Franklin, M. W., *Gesundheits-Ingenieur*, vol. 37, pp. 455-458; *cf. Chemical Abstracts*, vol. 8, p. 770.

Hygiene and the use of ozone for ventilation: Czaplewski, *Metallurgical and Chemical Engineering*, vol. 12, pp. 254-258.

The bactericidal, deodorizing, and physiological effect of ozone: Woolbridge, F. W., *Engineering News*, vol. 71, pp. 778-779.

The value of ozone in ventilation: Franklin, M. W., *Gesundheits-Ingenieur*, vol. 37, pp. 155-158; *Heating and Ventilating Magazine*, vol. 10, Nos. 10 and 11; *Chemisches Zentralblatt*, 1914, 1, p. 1295; *cf. Chemical Abstracts*, vol. 8, p. 2017.

Ozone in ventilation: Olsen, J. C., and Ulrich, W. H., *Journal of Industrial and Engineering Chemistry*, vol. 6, pp. 619-623; *Heating and Ventilating Magazine*, 1914, pp. 15-19.

Air ozonization: Franklin, M. W., *Journal of Industrial and Engineering Chemistry*, vol. 6, pp. 850-855.

The use of ozone in purifying air: Konrich, University of Berlin, *Zeitschrift für Hygiene*, vol. 73, pp. 443-482; *Chemiker-Zeitung*, vol. 37, p. 385.

The improvement of the air in bathing establishments with ozone: Von Kupffer, L. A., *Gesundheits-Ingenieur*, vol. 36, pp. 300-303.

The use of ozone in ventilation: Von Kupffer, L. A., *Gesundheits-Ingenieur*, vol. 36, pp. 605-615.

The use of ozone in ventilation from the hygienic standpoint: Czaplewski, *Gesundheits-Ingenieur*, vol. 36, pp. 565-586.

The use of ozone in ventilation: Schmitz, E., *Chemiker-Zeitung*, vol. 37, pp. 384-385; Konrich, Ibid., p. 385.

Ventilation of railway tunnel by ozonated air: Anon., *Electrical World*, vol. 59, p. 626.

Increasing human efficiency by ozone: Radcliffe, W. H., *Cassier's Magazine*, vol. 41, p. 483.

Present status of ozone with reference to air purification: Small, Ralph D., *Journal of Industrial and Engineering Chemistry*, vol. 2, pp. 534-537.

Experiments in ozone ventilation: Erlandsen, A., and Schwartz, L., Staatliches Hygienisches Institut. Hamburg, *Zeitschrift für Hygiene*, vol. 67, pp. 391-428.

The action of ozone on air: Troy, M. O., *Chemical Engineering*, vol. 14, p. 321.

Ventilation (30d).—(*Report of the New York State Commission on Ventilation, Royal 8vo, 612 pages, illustrated, E. P. Dutton & Co., New York.*) The purpose of the field investigations of the Commission was primarily to study certain specific promising and practicable methods of schoolroom ventilation. These investigations included a study of the physical conditions of the air under various methods of ventilation, and subjective results were secured through records of sensations of comfort and mental and physiological reactions of the occupants.

Nine individual field investigations were made by the Commission. Typical fan and window ventilation methods were contrasted. The use of special types of air deflectors (window ventilators), combinations of air inlets and outlets, upward and downward ventilation, air distribution and air currents, humidification, and re-circulation of air all were specially studied.

Control of Sap-stain, Mold, and Incipient Decay in Green Wood (19a31).—*U. S. Dept. of Agriculture. Bureau of Plant Industry. Bulletin No. 1037. By Nathaniel O. Howard, Pathologist. Pages 53. Size 6" x 9". Illustrated.*)

Synopsis. Sap-stain. Definition of sap-stain. Chemical stains. Fungous stains. The sap-wood fungi. Susceptibility of various woods to sap-stain fungi. Strength of "blued" wood. Cause of the color in "blued" wood. Other fungous organisms causing surface discoloration in green timber. Factors which favor the growth of sap-stain and mold fungi. Durability of stained or molded wood. Losses due to sap-stain or mold. Control measures, kiln drying, steaming, and chemical treatments.

Lime Stucco (21d3)—(*Bulletin 307, National Lime Association, Size 6" x 9", pages 48. Illustrated.*) The word "stucco" as used in this report may be defined as a material used in a plastic state to form a hard coating for the exterior walls or other exterior surfaces of any building or structure. Lime stucco is a mixture of properly prepared lime putty or paste, sand, and water, with or without the addition of a small percentage of cement. Hair or fibre may be added to assist in forming the key, depending on the style and character of the background. Coloring matter may be added to obtain the tone desired, although more frequently color effects are obtained through the use of selected sands. Different colored (fine or coarse) aggregates may be used for obtaining various effects of color and surface texture.

The high plasticity of lime enables the artisan to apply lime stucco more easily, to spread it more freely and with less effort, and to work it more thoroughly. Authorities on stucco recommend that all stucco coats should be mixed comparatively lean. The reason for this use of lean mixtures is the tendency of stuccoes to expand and contract under varying moisture conditions. This volume change is approximately proportional to the volume of cementitious material present. A. H. White, an authority on stucco, says: "Freedom from the initial hair cracks can only be secured by using a lean mixture,—not richer than one part of cementing material to three of sand." It hardens slowly enough, due to evaporation of the water and carbonation, to permit the laths, to which it is applied to adjust themselves. This prevents the formation of cracks at an early period due to expansion or contraction of the laths.

Lime stucco, gauged with Portland cement, attains an initial set fairly quickly, due to the presence of the cement. It then finally hardens more slowly owing to the evaporation of the water and carbonation of the lime. This slower drying is advantageous because initial cracking is frequently caused by too rapid drying. Furthermore, it is unnecessary to wet or keep dampened a freshly coated surface when lime stucco is used.

Good workmanship is essential to good stucco. Its slower hardening permits the artisan to work and rework the surface until the densest and most durable stucco is secured. Like any other material, stucco mortar must be properly handled to secure good results.

Books, pamphlets, reports or articles mentioned may be obtained from the JOURNAL'S *Book Shop.*

CHARTRES
Photograph by
Harold C. Whitehouse